PHILIPPINE BIDDING DOCUMENT

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

DepED
DEPARTMENT OF EDUCATION

MAY 2021

2021-BLR4(001to006)-BV-CB-009

Sixth Edition
October 2020

Preface

These Philippine Bidding Documents (PBDs) for the procurement of Goods through Competitive Bidding have been prepared by the Government of the Philippines for use by any branch, constitutional commission or office, agency, department, bureau, office, or instrumentality of the Government of the Philippines, National Government Agencies, including Government-Owned and/or Controlled Corporations, Government Financing Institutions, State Universities and Colleges, and Local Government Unit. The procedures and practices presented in this document have been developed through broad experience, and are for mandatory use in projects that are financed in whole or in part by the Government of the Philippines or any foreign government/foreign or international financing institution in accordance with the provisions of the 2016 revised Implementing Rules and Regulations of Republic Act No. 9184.

The Bidding Documents shall clearly and adequately define, among others: (i) the objectives, scope, and expected outputs and/or results of the proposed contract or Framework Agreement, as the case may be; (ii) the eligibility requirements of Bidders; (iii) the expected contract or Framework Agreement duration, the estimated quantity in the case of procurement of goods, delivery schedule and/or time frame; and (iv) the obligations, duties, and/or functions of the winning bidder.

Care should be taken to check the relevance of the provisions of the PBDs against the requirements of the specific Goods to be procured. If duplication of a subject is inevitable in other sections of the document prepared by the Procuring Entity, care must be exercised to avoid contradictions between clauses dealing with the same matter.

Moreover, each section is prepared with notes intended only as information for the Procuring Entity or the person drafting the Bidding Documents. They shall not be included in the final documents. The following general directions should be observed when using the documents:

a. All the documents listed in the Table of Contents are normally required for the procurement of Goods. However, they should be adapted as necessary to the circumstances of the particular Procurement Project.

b. Specific details, such as the "*name of the Procuring Entity*" and "*address for bid submission*," should be furnished in the Instructions to Bidders, Bid Data Sheet, and Special Conditions of Contract. The final documents should contain neither blank spaces nor options.

c. This Preface and the footnotes or notes in italics included in the Invitation to Bid, Bid Data Sheet, General Conditions of Contract, Special Conditions of Contract, Schedule of Requirements, and Specifications are not part of the text of the final document, although they contain instructions that the Procuring Entity should strictly follow.

d. The cover should be modified as required to identify the Bidding Documents as to the Procurement Project, Project Identification Number, and Procuring Entity, in addition to the date of issue.

e. Modifications for specific Procurement Project details should be provided in the Special Conditions of Contract as amendments to the Conditions of Contract. For easy completion, whenever reference has to be made to specific clauses in the Bid Data Sheet or Special Conditions of Contract, these terms shall be printed in bold typeface on Sections I (Instructions to Bidders) and III (General Conditions of Contract), respectively.

f. For guidelines on the use of Bidding Forms and the procurement of Foreign-Assisted Projects, these will be covered by a separate issuance of the Government Procurement Policy Board.

Table of Contents

Glossary of Acronyms, Terms, and Abbreviations

ABC – Approved Budget for the Contract.

BAC – Bids and Awards Committee.

Bid – A signed offer or proposal to undertake a contract submitted by a bidder in response to and in consonance with the requirements of the bidding documents. Also referred to as *Proposal* and *Tender.* (2016 revised IRR, Section 5[c])

Bidder – Refers to a contractor, manufacturer, supplier, distributor and/or consultant who submits a bid in response to the requirements of the Bidding Documents. (2016 revised IRR, Section 5[d])

Bidding Documents – The documents issued by the Procuring Entity as the bases for bids, furnishing all information necessary for a prospective bidder to prepare a bid for the Goods, Infrastructure Projects, and/or Consulting Services required by the Procuring Entity. (2016 revised IRR, Section 5[e])

BIR – Bureau of Internal Revenue.

BSP – Bangko Sentral ng Pilipinas.

Consulting Services – Refer to services for Infrastructure Projects and other types of projects or activities of the GOP requiring adequate external technical and professional expertise that are beyond the capability and/or capacity of the GOP to undertake such as, but not limited to: (i) advisory and review services; (ii) pre-investment or feasibility studies; (iii) design; (iv) construction supervision; (v) management and related services; and (vi) other technical services or special studies. (2016 revised IRR, Section 5[i])

CDA - Cooperative Development Authority.

Contract – Refers to the agreement entered into between the Procuring Entity and the Supplier or Manufacturer or Distributor or Service Provider for procurement of Goods and Services; Contractor for Procurement of Infrastructure Projects; or Consultant or Consulting Firm for Procurement of Consulting Services; as the case may be, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

CIF – Cost Insurance and Freight.

CIP – Carriage and Insurance Paid.

CPI – Consumer Price Index.

DDP – Refers to the quoted price of the Goods, which means "delivered duty paid."

DTI – Department of Trade and Industry.

EXW – Ex works.

FCA – "Free Carrier" shipping point.

FOB – "Free on Board" shipping point.

Foreign-funded Procurement or Foreign-Assisted Project– Refers to procurement whose funding source is from a foreign government, foreign or international financing institution as specified in the Treaty or International or Executive Agreement. (2016 revised IRR, Section 5[b]).

Framework Agreement – Refers to a written agreement between a procuring entity and a supplier or service provider that identifies the terms and conditions, under which specific purchases, otherwise known as "Call-Offs," are made for the duration of the agreement. It is in the nature of an option contract between the procuring entity and the bidder(s) granting the procuring entity the option to either place

an order for any of the goods or services identified in the Framework Agreement List or not buy at all, within a minimum period of one (1) year to a maximum period of three (3) years. (GPPB Resolution No. 27-2019)

GFI – Government Financial Institution.

GOCC – Government-owned and/or –controlled corporation.

Goods – Refer to all items, supplies, materials and general support services, except Consulting Services and Infrastructure Projects, which may be needed in the transaction of public businesses or in the pursuit of any government undertaking, project or activity, whether in the nature of equipment, furniture, stationery, materials for construction, or personal property of any kind, including non-personal or contractual services such as the repair and maintenance of equipment and furniture, as well as trucking, hauling, janitorial, security, and related or analogous services, as well as procurement of materials and supplies provided by the Procuring Entity for such services. The term "related" or "analogous services" shall include, but is not limited to, lease or purchase of office space, media advertisements, health maintenance services, and other services essential to the operation of the Procuring Entity. (2016 revised IRR, Section 5[r])

GOP – Government of the Philippines.

GPPB – Government Procurement Policy Board.

INCOTERMS – International Commercial Terms.

Infrastructure Projects – Include the construction, improvement, rehabilitation, demolition, repair, restoration or maintenance of roads and bridges, railways, airports, seaports, communication facilities, civil works components of information technology projects, irrigation, flood control and drainage, water supply, sanitation, sewerage and solid waste management systems, shore protection, energy/power and electrification facilities, national buildings, school buildings, hospital buildings, and other related construction projects of the government. Also referred to as *civil works or works*. (2016 revised IRR, Section 5[u])

LGUs – Local Government Units.

NFCC – Net Financial Contracting Capacity.

NGA – National Government Agency.

PhilGEPS - Philippine Government Electronic Procurement System.

Procurement Project – refers to a specific or identified procurement covering goods, infrastructure project or consulting services. A Procurement Project shall be described, detailed, and scheduled in the Project Procurement Management Plan prepared by the agency which shall be consolidated in the procuring entity's Annual Procurement Plan. (GPPB Circular No. 06-2019 dated 17 July 2019)

PSA – Philippine Statistics Authority.

SEC – Securities and Exchange Commission.

SLCC – Single Largest Completed Contract.

Supplier – refers to a citizen, or any corporate body or commercial company duly organized and registered under the laws where it is established, habitually established in business and engaged in the manufacture or sale of the merchandise or performance of the general services covered by his bid. (Item 3.8 of GPPB Resolution No. 13-2019, dated 23 May 2019). Supplier as used in these Bidding Documents may likewise refer to a distributor, manufacturer, contractor, or consultant.

UN – United Nations.

Section I. Invitation to Bid

Republic of the Philippines
Department of Education
PROCUREMENT MANAGEMENT SERVICE
OD ☎ 8633.7232 PPMD ☎ 8636.6543 CMD ☎ 8635.3762
Rm. M-511, 5th Floor, Mabini Bldg., DepEd Central Office Complex, Meralco Avenue, Pasig City, Philippines
☎ 636.6542 / 633.9343 / email: depedcentral.bacsecretariat@deped.gov.ph

PROJECT NO.: 2021-BLR4(001to006)-BV-CB-009

INVITATION TO BID

FOR THE

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

1. The ***Department of Education (DepEd)***, through the *Government of the Philippines (GOP) under* ***FY 2021 LTE-SME Current Funds*** intends to apply the sum of ***Philippine Pesos One Billion, Nine Hundred Eighty-Six Million, Two Hundred Forty-Six Thousand, Seven Hundred Sixty-Two and 52/100 (PhP 1,986,246,762.52)***, being the aggregate Approved Budget for the Contract (ABC) to payments under the contracts for ***Mass Production and Supply of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 & Grades 4 to 6, Public Junior High School for Grades 7 to 10 and Public Senior High Schools for Grades 11 to 12 (Core and Stem),*** broken down in lots as follows:

LOT NO.	DESCRIPTION	ITEMS	APPROVED BUDGET FOR THE CONTRACT (ABC) in Php
1 MP-DBS	**DEVELOPED BASIC SCIKIT (MP-LOT 1)**	*-55 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 205,295,281.28**
2 MP-DS&ME	**DEVELOPED SCIENCE AND MATHEMATICS EQUIPMENT (MP-LOT 2)**	*-15 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 93,487,835.49**
3 MP-DSC	**DEVELOPED STORAGE CABINET (MP-LOT 3)**	*-1 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 113,455,921.25**
4 MI-C	**CHEMICALS (MI-LOT 4)**	*-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 20,668,669.48**
5 MI-MI	**MEASURING INSTRUMENTS (MI-LOT 5)**	*-30 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 164,760,425.74**
6 MI-NP:ACS	**NON-POWERED: ACCESSORIES, CONSUMABLES AND SCAFFOLDS (MI-LOT 6)**	*-11 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 19,661,915.80**

7 **MI-GLT**	**GLASSWARES AND LAB TOOLS** **(MI-LOT 7)**	*-39 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 57,119,968.47**
8 **MI-MM**	**MATHEMACAL MANIPULATIVES** **(MI-LOT 8)**	*-19 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 210,567,810.96**
9 **MI-M:EOHB**	**MODELS: EARTH AND OTHER HEAVENTY BODIES** **(MI-LOT 9)**	*-11 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 263,748,038.09**
10 **MI-M:THA**	**MODELS: THE HUMAN ANATOMY** **(MI-LOT 10)**	*-18 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 138,746,999.47**
11 **MI-M:OBSS**	**MODELS: OTHER BIOLOGICAL STRUCTURES AND SPECIES** **(MI- LOT 11)**	*-6 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 53,020,055.04**
12 **MI-M:MG**	**MODELS: MOLECULAR GEOMETRY** **(MI-LOT 12)**	*-7 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 99,160,453.57**
13 **MI-NP:S&K**	**NON-POWERED: SETS AND KITS** **(MI-LOT 13)**	*-17 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 214,104,447.52**
14 **MI-NP:TID**	**NON-POWERED: TOOLS, INSTRUMENTS AND DEVICES** **(MI-LOT 14)**	*-14 items indicated in Annex "C" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 61,964,599.27**
15 **MI-P:TID**	**POWERED: TOOLS, INSTRUMENTS AND DEVICES** **(MI-LOT 15)**	*-13 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 212,195,577.66**
16 **MI-F&EK**	**FORCE AND ENERGY KITS** **(MI-LOT 16)**	*-31 items indicated in Annex "A" and Section VI. Schedule of Requirement of this Bidding Document*	**Php 58,288,763.43**
TOTAL			**PhP 1,986,246,762.52**

Bids received in excess of the ABC for each lot shall be automatically rejected at bid opening.

2. The **DepEd**, through the **Bids and Awards Committee (BAC) V**, now invites bids for the goods and services contemplated in this project, as detailed in the Schedule of Requirements and the table of Technical Specifications indicated in this bidding documents. ***Expected completion of delivery of the goods is as stated in the Schedule of Requirements.***

   Prospective bidders should have completed, within a period of ***ten (10) years*** immediately preceding the deadline for submission of bids at least two (2) similar contracts and the total of the aggregated contract amount should be equivalent to at least fifty percent (50%) of the ABC; and the largest of these similar contracts must be equivalent to at least twenty-five percent (25%) of the ABC.

3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary "*pass/fail*" criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

   Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective Bidders may obtain further information from **DepEd Procurement Management Service** at **Telephone Nos. 8636-6542 or 8633-9343** and inspect the Bidding Documents at the address given below from **Monday to Friday from 8:00am to 5:00pm.**

5. For those who are interested to purchase the Bidding Documents, two (2) options are made available, to wit:

   a. A complete set of Bidding Documents may be purchased by interested Bidders during office hours (8:00 A.M. to 5:00 P.M.) starting May 19, 2021 until the deadline of submission of bids on June 8, 2021 from the DepEd Procurement Management Service, Room M-511, 5th Floor, Mabini Building, DepEd Central Office Complex, Meralco Avenue, Pasig City, upon accomplishing a bidder's information sheet, ***presenting a "freshly-released" negative result (i.e., released within the past 24 to 72 hours) of similar tests (RT/PCR, antigen, or rapid test),*** and paying a nonrefundable fee for the Bidding Documents to the DepEd Cashier:

      - Basic minimum amount of **Four Thousand Six Hundred Eighty Pesos (Php 4,680.00)** to be paid upon purchase of the bidding documents, regardless of the number of lots and total amount involved in the bidder's prospective bid; and

      - Adjustment amount representing percentage of the ABC of the lots bid for, to be paid immediately upon submission of the bids

   Payment in checks should be made payable to **DECS OSEC Trust.**

   b. Interested Bidders may signify their intent to purchase the Bidding Documents through email at **depedcentral.bacsecretariat@deped.gov.ph** by accomplishing a bidder's information sheet **(Annex "B")**. Upon receipt of the bidder's information sheet, the BAC Secretariat Division will send through email the details of the DECS OSEC Trust Fund Account for payment. Upon payment, bidders may send through email the proof of payment before the deadline for submission of bids. Upon receipt of proof of payment, the BAC Secretariat will send the electronic copy of the Bidding Documents.

6. Considering the current situation due to the pandemic (COVID-19) and the mandate to observe social distancing, **DepEd** will hold a pre-bid conference for this Project on ***May 26, 2021, 9:00 A.M. through videoconferencing using the MS Teams,*** which shall be open to prospective bidders.

Prospective Bidders who intend to participate are required to communicate with the BAC Secretariat through email at depedcentral.bacsecretariat@deped.gov.ph their confirmation and accomplish the Online Pre-bid Conference Form provided ***(Annex C)*** on or before ***May 25, 2021, 12:00 NN.*** Upon receipt of this form, the BAC Secretariat Division will send the link of the meeting.

7. Bids must be duly received by the BAC Secretariat on or before **9:00 A.M. of June 8, 2021 at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City**.

   Late bids shall not be accepted.

8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.

9. Bid opening shall be on **June 8, 2021, 9:00 A.M. at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City**. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

   In adherence to health protocols and to ensure the safety of everybody, all participants to the submission and opening of bids for the above project are required to present a latest negative result of rapid test/ swab test/ antigen test, before entering the premises of the Department of Education.

   Opening of bids shall be on June 8, 2021, 9:00 A.M. at Bulwagan ng Karunungan, Ground Floor, Rizal Building, DepEd Complex, Meralco Ave., Pasig City. Bids will be opened in the presence of the bidders' representatives who choose to attend the activity.

   Only one (1) representative per bidder will be allowed entry into the premises.

   For the purpose of constituting a quorum, both the physical and virtual presence of the BAC and TWG members shall be considered pursuant to GPPB Resolution No. 09-2020.

10. The **DepEd** reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.

11. For further information, please refer to:

    Jessa B. Buela
    Administrative Officer II
    Procurement Management Service - BAC Secretariat Division
    Rm. M-511, 5th Floor, Mabini Bldg.
    DepEd Central Office Complex Meralco Avenue, Pasig City
    Telephone Nos. 8636-6542 or 8633-9343
    Email address: depedcentral.bacsecretariat@deped.gov.ph

12. You may visit the following websites:

For downloading of Bidding Documents:
https://notices.philgeps.gov.ph/
https://www.deped.gov.ph/

May 19, 2021

(SGD)
DIOSDADO M. SAN ANTONIO
Undersecretary and Chairperson

Section II. Instructions to Bidders

1. Scope of Bid

The Procuring Entity, **Department of Education (DepEd),** through the ***Bureau of Learning Resources – Cebu (BLR-Cebu)*** wishes to receive Bids for the ***Mass Production and Supply of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 & Grade 4 to 6, Public Junior High School for Grades 7 to 10 and Public Senior High Schools for Grades 11 to (Core and Stem),*** with identification number **2021-BLR4(001to006)-BV-CB-009**

The Procurement Project (referred to herein as "Project") is composed of **sixteen (16) Lots,** the details of which are described in **Section VI (Schedule of Requirements)** and **Section VII (Technical Specifications)** of this bidding document.

2. Funding Information

2.1. The GOP through the source of funding as indicated below for GAA 2021 in the amount of ***Philippine Pesos One Billion, Nine Hundred Eighty Six Million, Two Hundred Forty Six Thousand, Seven Hundred Sixty Two and 52/100 (PhP 1,986,246,762.52).***

2.2. The source of funding is the General Appropriations Act 2021 under ***FY 2021 LTE-SME Current Fund***

3. Bidding Requirements

The Bidding for the Project shall be governed by all the provisions of RA No. 9184 and its 2016 revised IRR, including its Generic Procurement Manuals and associated policies, rules and regulations as the primary source thereof, while the herein clauses shall serve as the secondary source thereof.

Any amendments made to the IRR and other GPPB issuances shall be applicable only to the ongoing posting, advertisement, or **IB** by the BAC through the issuance of a supplemental or bid bulletin.

The Bidder, by the act of submitting its Bid, shall be deemed to have verified and accepted the general requirements of this Project, including other factors that may affect the cost, duration and execution or implementation of the contract, project, or work and examine all instructions, forms, terms, and project requirements in the Bidding Documents.

4. Corrupt, Fraudulent, Collusive, and Coercive Practices

The Procuring Entity, as well as the Bidders and Suppliers, shall observe the highest standard of ethics during the procurement and execution of the contract. They or through an agent shall not engage in corrupt, fraudulent, collusive, coercive, and obstructive practices defined under Annex "I" of the 2016 revised IRR of RA No. 9184 or other integrity violations in competing for the Project.

5. Eligible Bidders

5.1. Only Bids of Bidders found to be legally, technically, and financially capable will be evaluated.

5.2. Foreign ownership exceeding those allowed under the rules may participate pursuant to:

i. When a Treaty or International or Executive Agreement as provided in Section 4 of the RA No. 9184 and its 2016 revised IRR allow foreign bidders to participate;

ii. Citizens, corporations, or associations of a country, included in the list issued by the GPPB, the laws or regulations of which grant reciprocal rights or privileges to citizens, corporations, or associations of the Philippines;

iii. When the Goods sought to be procured are not available from local suppliers; or

iv. When there is a need to prevent situations that defeat competition or restrain trade.

5.3. Pursuant to Section 23.4.1.3 of the 2016 revised IRR of RA No.9184, the Bidder shall have completed **at least two (2) similar contracts**, the aggregate amount of which, adjusted to current prices using the PSA's CPI, must be fifty percent (50%) of the ABC for each of the lots and the largest of these similar contracts must be equivalent to at least half of the percentage of the ABC as required above (i.e. 25% of the ABC).

5.4. The Bidders shall comply with the eligibility criteria under Section 23.4.1 of the 2016 IRR of RA No. 9184.

6. Origin of Goods

There is no restriction on the origin of goods other than those prohibited by a decision of the UN Security Council taken under Chapter VII of the Charter of the UN, subject to Domestic Preference requirements under **ITB** Clause 18.

7. Subcontracts

The Bidder may **NOT** subcontract portions of the Projects.

8. Pre-Bid Conference

The Procuring Entity will hold a pre-bid conference for this Project on the specified date and time and either through **videoconferencing/webcasting** as indicated in paragraph 6 of the **IB.**

9. Clarification and Amendment of Bidding Documents

Prospective bidders may request for clarification on and/or interpretation of any part of the Bidding Documents. Such requests must be in writing and

received by the Procuring Entity, either at its given address or through electronic mail indicated in the **IB**, at least ten (10) calendar days before the deadline set for the submission and receipt of Bids.

10. Documents comprising the Bid: Eligibility and Technical Components

10.1. The first envelope shall contain the eligibility and technical documents of the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.

10.2. The Bidder's SLCC as indicated in **ITB** Clause 5.3 should have been completed within a period of ten (10) years prior to the deadline for the submission and receipt of bids.

10.3. If the eligibility requirements or statements, the bids, and all other documents for submission to the BAC are in foreign language other than English, it must be accompanied by a translation in English, which shall be authenticated by the appropriate Philippine foreign service establishment, post, or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines. Similar to the required authentication above, for Contracting Parties to the Apostille Convention, only the translated documents shall be authenticated through an apostille pursuant to GPPB Resolution No. 13-2019 dated 23 May 2019. The English translation shall govern, for purposes of interpretation of the bid.

11. Documents comprising the Bid: Financial Component

11.1. The second bid envelope shall contain the financial documents for the Bid as specified in **Section VIII (Checklist of Technical and Financial Documents)**.

11.2. If the Bidder claims preference as a Domestic Bidder or Domestic Entity, a certification issued by DTI shall be provided by the Bidder in accordance with Section 43.1.3 of the 2016 revised IRR of RA No. 9184.

11.3. Any bid exceeding the ABC indicated in paragraph 1 of the **IB** shall not be accepted.

11.4. For Foreign-funded Procurement, a ceiling may be applied to bid prices provided the conditions are met under Section 31.2 of the 2016 revised IRR of RA No. 9184.

12. Bid Prices

12.1. Prices indicated on the Price Schedule shall be entered separately in the following manner:

a. For Goods offered from within the Procuring Entity's country:

i. The price of the Goods quoted EXW (ex-works, ex-factory, ex-warehouse, ex-showroom, or off-the-shelf, as applicable);

ii. The cost of all customs duties and sales and other taxes already paid or payable;

iii. The cost of transportation, insurance, and other costs incidental to delivery of the Goods to their final destination; and

iv. The price of other (incidental) services, if any, as listed in Section VII (Technical Specifications).

b. For Goods offered from abroad:

i. Unless otherwise stated in the **BDS**, the price of the Goods shall be quoted delivered duty paid (DDP) with the place of destination in the Philippines as specified in the **BDS**. In quoting the price, the Bidder shall be free to use transportation through carriers registered in any eligible country. Similarly, the Bidder may obtain insurance services from any eligible source country.

ii. The price of other (incidental) services, if any, as listed in **Section VII (Technical Specifications).**

13. Bid and Payment Currencies

13.1. For Goods that the Bidder will supply from outside the Philippines, the bid prices may be quoted in the local currency or tradeable currency accepted by the BSP at the discretion of the Bidder. However, for purposes of bid evaluation, Bids denominated in foreign currencies, shall be converted to Philippine currency based on the exchange rate as published in the BSP reference rate bulletin on the day of the bid opening.

13.2. Payment of the contract price shall be made in **Philippine Pesos.**

14. Bid Security

14.1. The Bidder shall submit a Bid Securing Declaration or any form of Bid Security in the amount indicated in the **BDS**, which shall be not less than the percentage of the ABC in accordance with the schedule in the **BDS**.

14.2. The Bid and bid security shall be valid for **120 calendar days** reckoned from the date of the opening of bids. Any Bid not accompanied by an acceptable bid security shall be rejected by the Procuring Entity as non-responsive.

15. Sealing and Marking of Bids

Each Bidder shall submit one copy of the first and second components of its Bid.

The Procuring Entity may request additional hard copies and/or electronic copies of the Bid. However, failure of the Bidders to comply with the said request shall not be a ground for disqualification.

16. Deadline for Submission of Bids

16.1. The Bidders shall submit on the specified date and time at the physical address indicated in paragraph 7 of the **IB**.

17. Opening and Preliminary Examination of Bids

17.1. The BAC shall open the Bids in public at the time, on the date, and at the place specified in paragraph 9 of the **IB**. The Bidders' representatives who are present shall sign a register evidencing their attendance. In case videoconferencing, webcasting or other similar technologies will be used, attendance of participants shall likewise be recorded by the BAC Secretariat.

In case the Bids cannot be opened as scheduled due to justifiable reasons, the rescheduling requirements under Section 29 of the 2016 revised IRR of RA No. 9184 shall prevail.

17.2. The preliminary examination of bids shall be governed by Section 30 of the 2016 revised IRR of RA No. 9184.

18. Domestic Preference

18.1. The Procuring Entity will grant a margin of preference for the purpose of comparison of Bids in accordance with Section 43.1.2 of the 2016 revised IRR of RA No. 9184.

19. Detailed Evaluation and Comparison of Bids

19.1. The Procuring BAC shall immediately conduct a detailed evaluation of all Bids rated "*passed*," using non-discretionary pass/fail criteria. The BAC shall consider the conditions in the evaluation of Bids under Section 32.2 of the 2016 revised IRR of RA No. 9184.

19.2. The Project does not allow partial bids. Bidders shall submit a proposal on the entirety of the project, and evaluation will be undertaken on the basis of the completeness of the bid.

19.3. The descriptions of the lots shall be indicated in **Section VI (Schedule of Requirements) and Section VII (Technical Specifications)**, although the ABCs of these lots are indicated in the BDS for purposes of the NFCC computation pursuant to Section 23.4.2.6 of the 2016 revised IRR of RA No. 9184. The NFCC must be sufficient for the total of the ABCs for all the lots participated in by the prospective Bidder.

19.4. The Project shall be awarded as separate contracts per lot.

19.5. Except for bidders submitting a committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation, all Bids

must include the NFCC computation pursuant to Section 23.4.1.4 of the 2016 revised IRR of RA No. 9184, which must be sufficient for the total of the ABCs for all the lots or items participated in by the prospective Bidder. For bidders submitting the committed Line of Credit, it must be at least equal to ten percent (10%) of the ABCs for all the lots or items participated in by the prospective Bidder.

20. Post-Qualification

20.2. Within a non-extendible period of five (5) calendar days from receipt by the Bidder of the notice from the BAC that it submitted the Lowest Calculated Bid the Bidder shall submit its latest income and business tax returns filed and paid through the BIR Electronic Filing and Payment System (eFPS) and other appropriate licenses and permits required by law and stated in the BDS.

21. Signing of the Contract

21.1. The documents required in Section 37.2 of the 2016 revised IRR of RA No. 9184 shall form part of the Contract. Additional Contract documents are indicated in the **BDS**.

Section III. Bid Data Sheet

Bid Data Sheet

ITB Clause	
5.3	For the purpose of the track-record requirement, contracts similar to the Project shall refer to **Supply and Delivery of Science and/or Mathematics Equipment.** For this purpose, the similar contract should have been completed within a period of **ten (10) years** immediately preceding the deadline for the submission and receipt of bids. The bidder may apply the similar contract to any or to all lots participated in by the bidder, subject only to the threshold required under Sec. 23.4.1.3 of the 2016 revised IRR of RA 9184 and clause 5.3 of the Invitation to Bidders.
7.1 (b)	**Subcontract** Subcontracting is not allowed
12	The price of the Goods shall be quoted Delivered Duties Paid (DDP).
14.1	The bid security shall be in the form of a Bid Securing Declaration, or any of the forms and the respective amounts indicated in ***Annex "D"*** of this bidding documents **There must be a separate Bid Security for each lot**. In the case of Bid Securing Declaration, the bidder may opt to submit as many Bid Securing Declarations as there are lots it is participating on OR a single declaration for all lots provided the lots are specifically stated in the said Bid Securing Declaration.
14.2	Bid Securities, other than a Bid Securing Declaration, shall be turned over to the DepEd Cash Division for custody. On the other hand, the Bid Securing Declaration shall be turned-over to the BAC Secretariat Division. Bid Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any materials information or feature of the document.
15	Bidders shall enclose their original eligibility and technical documents in one sealed envelope marked "ORIGINAL – TECHNICAL COMPONENT", and the original of their financial component in another sealed envelope marked "ORIGINAL – FINANCIAL COMPONENT." In addition, the Bidders shall submit a copy of each of the Technical Component and the Financial Component of their bids in separate envelopes, respectively. Then, the bidders shall seal and mark the original and the copies of their bids. In the event of any discrepancy between the original and the copy, the original shall prevail.

	Original copies of the Class "A" Eligibility Legal Documents, such as the SEC, DTI, or the CDA registration certificate and the Mayor's Permit, may not be submitted on the date and the time of the bid submission. However, the bidder must be able to present such original copies during post-qualification on demand by the BAC or its authorized representative(s). To facilitate the receipt and classification of bid envelopes, ***outer envelopes*** *shall be color* ***RED, inner envelope containing Technical Proposal*** *shall be color* ***Blue*** *and* ***inner envelope containing Financial Proposal*** *shall be color* ***Green.*** The following documents which are to be submitted as part of the bids are advised to be produced in electronic forms recorded on three (3) USB / flash drives (both Word format and PDF (or read-only) format) 1. Statement of Compliance with Technical Specifications 2. Filled out Price Schedule 3. Filled out Net Financial Contracting Capacity (NFCC) In case of discrepancy in the substance and content between the printed copies and the USB/flash drives, the printed copies shall prevail. Non-submission of electronic copies will not be a ground for disqualification, but the bidder/s are required to submit the same during the post-qualification. Post qualification documents maybe submitted during the bidding but this does not disqualify bidders who will not submit post qualification documents during bid submission. ***Note: Each Bidder shall submit three (3) paper copies of its bid.*** A bidder may bid on one (1) or more lots. Submit only one (1) set of bid doc (1 original and 2 copies). Unsealed or unmarked bid envelopes, shall be rejected. However, bid envelopes that are not properly sealed and marked as required in the Bidding Documents, shall be accepted, provided that the bidder or its duly authorized representative shall acknowledge such condition of the bid as submitted. The BAC shall assume no responsibility for the misplacement of the contents of the improperly sealed or marked bid, or for its premature opening.
19.5	The computation of a prospective bidder's NFCC must be at least equal to the ABC to be bid, calculated as follows: *NFCC – [(Current assets minus current liabilities) (15)] minus the value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started, coinciding with the lot or aggregate of lots bid for.*

The values of the domestic bidder's current assets and current liabilities shall be based on the latest Audited Financial Statements submitted to the BIR.

For purposes of computing the foreign bidders' NFCC, the value of the current assets and current liabilities shall be based on their Audited Financial Statements prepared in accordance with international financial reporting standards. (23.5.1.4a)

If the prospective bidder submits a committed Line of Credit, it must be at least equal to ten (10%) of the ABC of the lot/s bid for: Provided, that if the same is issued by a foreign Universal or Commercial Bank, it shall be confirmed or authenticated by a local Universal or Commercial Bank.

In case the bidder bids for two or more lots, the bidder shall indicate the lots bid for in the order of priority or preference, following the form prescribed in this bidding documents.

The computation of NFCC shall take into account the lots bid for. The number of lots bid for shall also consider the committed line of credit. The bid shall be allowed only to the extent (i.e. number of lots) as the NFCC or the committed line of credit shall cover.

In any case, the NFCC computation or committed line of credit, as well as the SLCC, must be sufficient for all the lots or contracts bid for. The NFCC computation shall be in accordance with the prescribed form.

In case of a bid involving two or more lots, the bidder shall indicate in the NFCC form the lots bid for, in their order of priorities or preferences. The first lot in the order shall follow the following formula:

NFCC = [(current assets minus current liabilities) x (15)] - value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started

For subsequent lots, the formula shall be as follows:

NFCC = [(current assets — current liabilities) x (15)] - [value of all outstanding or uncompleted portions of the projects under ongoing contracts, including awarded contracts yet to be started + value of the prior* lot/s *bid for]

In case of a joint venture, the NFCC shall be computed based on the Audited Financial Statement of the local lead partner, unless it is shown by clear proof that the other partners to the joint venture have infused capital investment to support the operation of the local lead partner to ensure compliance with the obligations under the contracts in this project, in which case the NFCC of the foreign joint venture or the minority partner of the joint venture shall be computed.

	For this purpose, the local lead partner shall be that person/organization/company identified in the Joint Venture Agreement or in the Letters of Intents (for potential JV partners) shown to have the controlling stakes in the JV. For easier reference, participating JVs or prospective JV partners must indicate in their JVAs or Letters of Intent the local lead partner appointed by them.
20.2	Within a non-extendible period of **five (5) calendar days** from receipt by the bidder of the notice from the BAC that it submitted the LCB, the Bidder shall submit the following documentary requirements: a. Latest income and business tax returns: Printed copies of the Electronically filed Income Tax and Business Tax Returns with copies of their respective Payment Confirmation Forms for the immediately preceding calendar/tax year from the authorized agent bank; Only tax returns filed and taxes paid through the BIR Electronic Filing and Payment System (EFPS) shall be accepted. *NOTE: The latest income and business tax returns are those within the last six months preceding the date of bid submission.* b. Certificate of PhilGEPS Registration (Platinum Membership); and c. Other appropriate licenses and permits required by law and stated in this **BDS**. During post-qualification, upon demand by the BAC or its representative(s), a bidder with the lowest calculated bid shall be able to present: a. Documents to verify or support its Statement of On-going and/ or Statement identifying its Single Largest Completed Contract which may consist of the following: appropriate and clear duly signed contracts, purchase orders, agreements, notices of award, job orders, or notices to proceed, with the corresponding duly signed certificate of completion, delivery receipts, inspection and acceptance reports, certificates of final acceptance or official receipts; and b. Original copy of the submitted eligibility, technical and financial documents during bid opening; In case of foreign bidders, a Certificate of Authentication from the Department of Foreign Affairs shall be required for each document submitted, i.e. the Class "A" documents or its equivalent that are written in foreign language, translated to English, and duly authenticated by the appropriate Philippine foreign service establishment/post or the equivalent office having jurisdiction over the foreign bidder's affairs in the Philippines.

	To facilitate post-qualification, the bidder at its option may submit in advance, i.e., on the deadline for submission and receipt of bids, above requirements and other documents required in Section II. ITB 20.2. The envelope shall be placed in a brown envelope and marked: ITB 20.2 Documents Name of Project: _____ Bid Opening Date: _____ Name of Bidder: _____ Failure to submit above re4quirements within the required timeframe or a finding against the veracity of any such documents or other documents submitted for the project shall be a ground for disqualification of the bidder for the award and the enforcement of the bid securing declaration. In addition to the documentary requirements to be submitted during post-qualification as provided under ITB Clause 20.2 (a) to (c), **the bidder/s having the Lowest Calculated Bid/s shall submit sample item(s)/unit(s) for all the items within the lot/s being bid consistent with its actual offer as indicated in its bid.** However, the bidder may provide a sample of better or superior quality, which, of accepted, shall be the reference for award, contract, prospection and eventual delivery. These samples shall be subjected to **evaluation during post-qualification to determine compliance of the said bidder/s with DepEd Technical Specifications requirements.** Please refer to **Annex "E"** for the submission of samples. **Failure of the samples** to meet DepEd specifications shall be a ground for disqualification of the bidder/s. **Testing Procedures** **1.** Maximum of two (2) bidder's representatives shall set-up the items/demo units for evaluation and witness the testing and evaluation of samples. **2.** Upon set-up and prior to the conduct of actual testing by the TWG, the supplier's representatives shall assist the TWG in the conduct of physical inspection of the items. **3.** The BAC Secretariat and TWG shall be the only official photographer/videographer who will cover the whole testing procedures.
21.1	No additional document

Section IV. General Conditions of Contract

1. Scope of Contract

This Contract shall include all such items, although not specifically mentioned, that can be reasonably inferred as being required for its completion as if such items were expressly mentioned herein. All the provisions of RA No. 9184 and its 2016 revised IRR, including the Generic Procurement Manual, and associated issuances, constitute the primary source for the terms and conditions of the Contract, and thus, applicable in contract implementation. Herein clauses shall serve as the secondary source for the terms and conditions of the Contract.

This is without prejudice to Sections 74.1 and 74.2 of the 2016 revised IRR of RA No. 9184 allowing the GPPB to amend the IRR, which shall be applied to all procurement activities, the advertisement, posting, or invitation of which were issued after the effectivity of the said amendment.

Additional requirements for the completion of this Contract shall be provided in the **Special Conditions of Contract** (**SCC).**

2. Advance Payment and Terms of Payment

2.1. Advance payment of the contract amount is provided under Annex "D" of the revised 2016 IRR of RA No. 9184.

2.2. The Procuring Entity is allowed to determine the terms of payment on the partial or staggered delivery of the Goods/services procured, provided such partial payment shall correspond to the value of the goods/services delivered and accepted in accordance with prevailing accounting and auditing rules and regulations. The terms of payment are indicated in the **SCC**.

3. Performance Security

Within ten (10) calendar days from receipt of the Notice of Award by the Bidder from the Procuring Entity but in no case later than prior to the signing of the Contract by both parties, the successful Bidder shall furnish the performance security in any of the forms prescribed in Section 39 of the 2016 revised IRR of RA No. 9184.

4. Inspection and Tests

The Procuring Entity or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Project specifications at no extra cost to the Procuring Entity in accordance with the Generic Procurement Manual. In addition to tests in the **SCC**, **Section IV (Technical Specifications)** shall specify what inspections and/or tests the Procuring Entity requires, and where they are to be conducted. The Procuring Entity shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.

All reasonable facilities and assistance for the inspection and testing of Goods, including access to drawings and production data, shall be provided by the Supplier to the authorized inspectors at no charge to the Procuring Entity.

5. Warranty

5.1 In order to assure that manufacturing defects shall be corrected by the Supplier, a warranty shall be required from the Supplier as provided under Section 62.1 of the 2016 revised IRR of RA No. 9184.

5.2 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall, repair or replace the defective Goods or parts thereof without cost to the Procuring Entity, pursuant to the Generic Procurement Manual.

6. Liability of the Supplier

The Supplier's liability under this Contract shall be as provided by the laws of the Republic of the Philippines.

If the Supplier is a joint venture, all partners to the joint venture shall be jointly and severally liable to the Procuring Entity.

Section V. Special Conditions of Contract

Special Conditions of Contract

GCC Clause	
1	**Delivery and Documents –** For purposes of the Contract, "EXW," "FOB," "FCA," "CIF," "CIP," "DDP" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of INCOTERMS published by the International Chamber of Commerce, Paris. The Delivery terms of this Contract shall be as follows: *For Goods supplied from abroad:* "The delivery terms applicable to the Contract are DDP (Ex-Supplier's Warehouse), in accordance with INCOTERMS." *For Goods supplied from within the Philippines:* "The delivery terms applicable to this Contract are as indicated in the succeeding portions. Risk and title will pass from the Supplier to the DepEd upon receipt and final acceptance of the Goods at the Supplier's designated warehouse." The goods/items shall be picked-up/hauled by the third-party logistics provider designated by the DepEd. For Mass Production, the Supplier must ensure that the cabinets are properly sealed, complete, properly packaged (where applicable, must be knocked-down suitable for easier hauling, transport and storage) upon picked-up/hauled by the third-party logistics for the delivery to the designated area to perform the formal acceptance of the items by the recipient school, as the case may be. **Incidental Services –** Where applicable, the Supplier is required to provide all of the following services, including additional services, if any, specified in Section VI. Schedule of Requirements, among which are as follows: a. Performance or supervision of on-site assembly and/or start-up of the supplied Goods; b. The Supplier shall distribute the properly accomplished delivery documents to the concerned offices and individual such as: DepEd Central Offices [accounting/COA – complete set original; AMD – complete set; BLR – complete set] Supplier – complete set and Individual: Third party monitor – IAR only. The Contract price for the Goods shall include the prices charged by the Supplier for incidental services.

	Spare Parts – The Supplier is required to provide all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier: a. such spare parts as the DepEd may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under this Contract; b. in the event of termination of production of the spare parts: i. advance notification to the DepEd of the pending termination, in sufficient time to permit the Procuring Entity to procure needed requirements; and ii. following such termination, furnishing at no cost, to the DepEd, the blueprints, drawings, and specifications of the spare parts, if requested. The Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares for the Goods that will be sustained for a **minimum of five (5) years** from the date the goods were procured. Other spare parts and components must be available nationwide and shall be supplied as promptly as possible, but in any case within **one (1) month** of placing the order. **Packaging –** The Supplier shall provide such packaging of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in this Contract. The packaging shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packaging case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit. The packaging, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified below, and in any subsequent instructions ordered by the DepEd. The outer packaging must be clearly marked on at least four (4) sides as follows:

	"*Working for Quality, Accessible, Relevant, and Liberating Education!*" Project Name Items inside (name, general description, quantity) Packaging/Unpacking instructions • Any special lifting instructions • Any special handling instruction • Any relevant HAZCHEM classifications Supplier's Name and Contact Details Recipients Name and Contact Details External sides of delivery packages/boxes should be colored CYAN BLUE: C, M, Y, K, (71, 53, 0, 12) A packaging list identifying the contents and quantities of the package is to be placed on an accessible point of the outer packaging if practical. If not practical the packaging list is to be placed inside the outer packaging but outside the secondary packaging. **Transportation –** The Supplier shall, upon notice by DepEd, ensure that items/goods are made available for inspection at its warehouse, which should be located in **NCR, Region 3 or Region 4-A**. After inspection and acceptance at its warehouse, the Supplier shall ensure that the goods/items are sealed, ready and fit for transport **Intellectual Property Rights –** The Supplier shall indemnify the DepEd against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof.
2.2	**Schedule of Payment:** Progress Payments - Supplier may submit a request for payment based on the monthly Progress Reports. The Progress Reports shall be attached to the progress billing and should include the following: (i) cumulative quantities of items delivered based on the schedule of deliveries and other relevant terms and conditions of the contract; and (ii) Inspection and acceptance reports, including certification by supplier, as approved by duly authorized DepEd representative, that

	the items have been delivered on/or properly installed and commissioned in accordance with the contract. Delivery documents as may be subsequently prescribed by DepEd shall be provided by the Supplier. Payments shall be subject to the **"Warranty"** provision in the form of either retention money in an amount equivalent to at least 3% of every progress payment, or a special bank guarantee in the amount equal to at least 3% of the Contract Price required in Section 62 of RA 9184 and its IRR. The method and conditions of payment to be made to the Supplier through the Government disbursement procedure within sixty (60) days after the date of acceptance of Goods at the project Site and upon submission of documents under this contract shall be as follows: For the **initial progress payment**, a minimum of 25% of the Contract Price shall be paid to the Supplier upon a minimum of 25% delivery of the requirement duly inspected and accepted. **Final payment** shall constitute release of the retention money in case of expiry of the warranty period, or whatever is left of it, after it has been called for use under the warranty provision.
3	**Performance Security** The Performance Security shall be posted in favor of DepEd, and shall be forfeited in the event it is established that the Supplier is in default of any of its obligation under the contract. The Supplier shall be responsible for the extension of its performance security and/or renewal of its performance security whenever necessary and/ without need of prior notice or instruction from DepEd, to ensure that it is in force and effect for the whole duration of the contract delivery period and until a Certificate of Final Acceptance is duly issued. Performance Security shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any materials information or feature of the document.
4	**Inspection** The inspections and tests that will be conducted are: 1. DepEd shall conduct pre-delivery inspection(s) at supplier's premises or ex warehouse or place of assembly 2. DepEd reserves the right to inspect and/or test the items to check on manufacturing defects or defects among from substandard specifications and for which reasons call for replacement or repair of the said items under the warranty provisions.

	3. The DepEd shall have the option to inspect supplier's premises covered by the contract to monitor and assess Supplier's capacity to discharge its contractual obligations to the DepEd.
5	**Warranty** A comprehensive and onsite warranty for the procured items will be applied. The said warranty period shall reckon from the date of issuance of the Certificate of Final Acceptance by the DepEd that the delivered goods have been duly inspected and accepted (i.e. final acceptance). The obligation for the warranty shall be covered by retention money in an amount equivalent to three percent (3%) of every progress payment or a special bank guarantee equivalent to three percent (3%) of the Contract Price. In case the supplier opts for retention money, the amount shall only be released after the lapse of the entire warranty period, unless during the remainder of the warranty period, the retention money is substituted with a special bank guarantee as prescribed above. The Special Bank Guarantee shall not contain any deletion, crossing-out, expunction, or any form of correction. Otherwise, DepEd may reject such security if any such intercalation or alteration affects any materials information or feature of the document.

Section VI. Schedule of Requirements

A. List/Description of Goods /Services

The delivery schedule expressed herein in calendar days refer to the number of days within which the items should be made available for inspection and acceptance by DepEd, at the supplier's designated Warehouse, pursuant to clause 1 of the SCC.

Lot No.	Item No.	Description	Total Quantity	Delivery Period
Mass Productions				
1	1	BLR-developed Basic Scikit: Ø 9.5mm x 250mm long Stand Rod	48,710	***154 Calendar Days***
	2	BLR-developed Basic Scikit: Ø 9.5mm x 500mm long Stand Rod	97,420	
	3	BLR-developed Basic Scikit: Ø 12.7mm x 1000mm long Stand Rod	14,940	
	4	BLR-developed Basic Scikit: Rail	29,880	
	5	BLR-developed Basic Scikit: Ring with stem	24,355	
	6	BLR-developed Basic Scikit: Test Tube Rack	24,355	
	7	BLR-developed Basic Scikit: Wire Gauze	24,355	
	8	BLR-developed SCIKIT BASIC 001: Stand Base	48,710	
	9	BLR-developed SCIKIT BASIC 001: Stand Support	97,420	
	10	BLR-developed SCIKIT BASIC 001: SCIKIT BASIC Storage Case 001 (With Cover and Base Sheathing)	4,871	
	11	BLR-developed SCIKIT BASIC 002: Multiclamp	121,775	
	12	BLR-developed SCIKIT BASIC 002: Test Tube Holder	24,355	
	13	BLR-developed SCIKIT BASIC 002: SCIKIT BASIC Storage Case 002 (With Cover and Base Sheathing)	4,871	
	14	BLR-developed SCIKIT BASIC 003: Universal Clamp	58,452	
	15	BLR-developed SCIKIT BASIC 003: Universal Bosshead	48,710	
	16	BLR-developed SCIKIT BASIC 003: SCIKIT BASIC Storage Case 003 (With Cover and Base Sheathing	4,871	
	17	BLR-developed Free Fall Apparatus (Mechanics 001): Ball Case (with Cover and foam)	11,730	
	18	BLR-developed Free Fall Apparatus (Mechanics 001): Digital Timer Assembly (Digital Stopwatch)	11,730	
	19	BLR-developed Free Fall Apparatus (Mechanics 001): Metertape with hooks and plastic pointer	11,730	
	20	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 12.7mm Steel Spherical Ball	23,460	
	21	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Plastic Spherical Ball with metal screw	23,460	
	22	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Steel Spherical Ball	23,460	
	23	BLR-developed Free Fall Apparatus (Mechanics 001): Pad Switch Assembly	11,730	
	24	BLR-developed Free Fall Apparatus (Mechanics 001): Solenoid Assembly	11,730	
	25	BLR-developed Free Fall Apparatus (Mechanics 001): Synchro Box Assembly	11,730	
	26	BLR-developed Free Fall Apparatus (Mechanics 001): SCIKIT MECHANICS Storage Case 001 (With Cover and Base Sheathing)	11,730	
	27	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-spring loaded	14,940	
	28	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-with counterweight	14,940	
	29	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cylindrical Mass, 50-gram	74,700	
	30	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Driving Mass, 3-gram	74,700	
	31	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Leveling Pad Assembly	14,940	
	32	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Plastic Hammer	14,940	

	33	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Modelling Clay, 1 bar/set	14,940	
	34	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Stopper-Fork Assembly	14,940	
	35	BLR-developed Dynamics Carts-Rail System (Mechanics 002): String (thin), 1 ball/set	14,940	
	36	BLR-developed Dynamics Carts-Rail System (Mechanics 002): SCIKIT MECHANICS Storage Case 002 (With Cover and Base Sheathing)	14,940	
	37	BLR-developed SCIKIT MECHANICS 003: 10-Newton Spring Balance	21,145	
	38	BLR-developed SCIKIT MECHANICS 003: 250-gram Hooked Mass	42,290	
	39	BLR-developed SCIKIT MECHANICS 003: 500-gram Hooked Mass	21,145	
	40	BLR-developed SCIKIT MECHANICS 003: Axle and Lever Beam	21,145	
	41	BLR-developed SCIKIT MECHANICS 003: Double Pulley	42,290	
	42	BLR-developed SCIKIT MECHANICS 003: Dry Cell, AA 1.5V	23,460	
	43	BLR-developed SCIKIT MECHANICS 003: Friction Block and Friction Board	9,750	
	44	BLR-developed SCIKIT MECHANICS 003: Leveling Hose	11,730	
	45	BLR-developed SCIKIT MECHANICS 003: Motorized Cart	11,730	
	46	BLR-developed SCIKIT MECHANICS 003: Single Pulley	42,290	
	47	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear B	23,460	
	48	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear C	11,730	
	49	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm Gear A	23,460	
	50	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm with Axle	11,730	
	51	BLR-developed SCIKIT MECHANICS 003: String (thick), 1 ball/set	335	
	52	BLR-developed SCIKIT MECHANICS 003: SCIKIT MECHANICS Storage Case 003 (With Cover and Base Sheathing)	21,145	
	53	BLR-developed: User's Manual (SCIKIT BASIC)	4,871	
	54	BLR-developed: User's Manual (SCIKIT MECHANICS)	4,871	
	55	BLR-developed: Experiment Module (SCIKIT MECHANICS)	4,871	
2	1	BLR-developed Blackboard Compass	6,028	***154 Calendar Days***
	2	BLR-developed Blackboard Protractor	6,028	
	3	BLR-developed Convection Tank (Thermocline Apparatus)	11,395	
	4	BLR-developed Heat Conductivity Apparatus	21,145	
	5	BLR-developed Light Source (Single Slit)	14,940	
	6	BLR-developed Set of Coils (Transformer)	11,730	
	7	BLR-developed Variable Power Supply with 5 pcs. Terminal Board	11,730	
	8	BLR-developed Fresh Water Aquarium with Stand	1,883	
	9	BLR-developed: Fraction Set	18,745	
	10	BLR-developed: Linear Pair/Angle Demonstrator	20,810	
	11	BLR-developed: Manipulative Electricity Consumption Meter Model, blackboard	1,883	
	12	BLR-developed: Manipulative Water Consumption Meter Model, blackboard	1,883	
	13	BLR-developed: Models of 7-sided to 12-sided Regular Polygons	18,830	
	14	BLR-developed: Number Blocks	9,330	
	15	BLR-developed: Place Value Chart with decimal pockets	1,883	
3	1	BLR-developed Storage Cabinet	9,083	***154 Calendar Days***

Market Items				
4	1	Bromothymol Blue	2,279	**144 Calendar Days**
	2	Gentian Violet, 100 ml / bottle	2,279	
	3	Iodine Solution, 100 ml / bottle	2,346	
	4	Microscope's Immersion Oil, 100mL/bot	2,279	
	5	Yeast, active dry, 100 grams / bottle	2,279	
	6	Benedict's Solution, 100ml/bottle	2,988	
	7	Boric Acid, 100 grams / bottle	2,988	
	8	Calcium Chloride, 100 grams / bottle	2,988	
	9	Copper Sulfate, CuSO4, 100 grams / bottle	2,988	
	10	Hydrochloric Acid, HCl, 6M, 500 mL / bottle	2,988	
	11	Magnesium Ribbon, 25 grams, 1 roll	2,988	
	12	Manganese Dioxide, 50 grams / bottle	2,988	
	13	Phenolphthalein, 100 grams/bottle	2,346	
	14	Potassium Chloride, 100 grams / bottle	2,988	
	15	Potassium Iodide, 100 grams / bottle	2,988	
	16	Sodium Hydroxide (Lye), 250 grams/bottle	2,988	
	17	Zinc Chloride, 100 grams / bottle	2,988	
	18	Zinc metal, pellets/mossy, 100 grams / bottle	2,988	
	19	Storage box for (Chemicals)	2,988	
5	1	Anemometer with Wind Vane, Cup type	7,498	**144 Calendar Days**
	2	Anemometer, Simple	3,749	
	3	Coefficient of Linear Expansion	335	
	4	Flask, Florence, glass, 250 mL	335	
	5	Laser Light	14,940	
	6	Manometer, Open U-tube with Nakamura-type Water Pressure Apparatus	335	
	7	Ticker Timer Set	11,395	
	8	Balance, Double-pan, 500-gram	18,745	
	9	Measuring Kit (Volume)	1,866	
	10	Meterstick, plastic	120,560	
	11	Protractor (for student)	241,120	
	12	Ruler, Plastic, 12 inches or 30 cm	243,800	
	13	Scale, Spring, Hanging type	1,866	
	14	Scale, Weighing, analog, 10 kg. capacity	1,866	
	15	Scale, Weighing, bathroom-type	1,866	
	16	Tape Measure, 1.5 meters	120,560	
	17	Balance, Toploading, Electronic	709	
	18	Balance, Triple Beam, with tare, 2610-gram	11,395	
	19	Calorimeter	335	
	20	Flask, Volumetric, borosilicate 250 mL	14,940	
	21	Graduated Cylinder, borosilicate, 10 mL	24,355	
	22	Graduated Cylinder, borosilicate, 100 mL	24,355	
	23	Graduated pipette with rubber pipettor, borosilicate, 10 mL	335	
	24	Hydrometer for heavy liquids	335	
	25	Hydrometer for light liquids	335	
	26	pH Meter, hand-held	11,730	
	27	Thermometer, Laboratory type, Alcohol, -20ºC to 110ºC	35,568	
	28	Thermometer, Classroom, wall-mount	1,883	
	29	Thermometer, Clinical, digital	9,415	
	30	Universal pH Paper, pH 0-14, 100 strips/pack	2,988	
6	1	Hexagonal Weigh Dishes Set, 50mL, 500 pcs/pack	3,749	**144 Calendar Days**
	2	Reaction Plates with 6 Wells	14,940	
	3	Sedimentator Tube	3,545	
	4	Force Table	335	
	5	Slinky Coil, metal	11,730	
	6	Lens Paper, 50's/pack	11,395	
	7	Wash Bottle, plastic, 250 mL	35,551	
	8	Template, shapes	18,745	
	9	Filter Paper, crepe, 580mm x 580 mm sheet, Grade 0905	48,710	
	10	Nichrome wire. 0.4, 100 ft (1 spool per package = 1.1 oz minimum with spool)	2,346	
	11	Triangular File, fine, 6-inch long, with plastic handle	14,940	
7	1	Beaker, borosilicate, 1000 mL	11,395	
	2	Dish, Petri	11,395	
	3	Tong, Beaker	3,545	

	4	Beaker, borosilicate, 100 mL	14,940	***144 Calendar Days***
	5	Beaker, borosilicate, 250 mL	33,685	
	6	Beaker, borosilicate, 50 mL	14,940	
	7	Beaker, borosilicate, 500 mL	14,940	
	8	Burette, 10 mL capacity (acid)	335	
	9	Burette, 10 mL capacity (base)	335	
	10	Burner, Alcohol, glass, 150 ml. Capacity	33,685	
	11	Burner, Bunsen	14,940	
	12	Cork Borers	2,346	
	13	Cork Stopper # 5 (for Ø 16mm test tube)	14,940	
	14	Crucible with lid/cover	14,940	
	15	Dish, Evaporating, 75 mL	33,685	
	16	Distillation set-up: Condenser, Liebig-type	134	
	17	Distillation set-up: Distilling Flask, borosilicate, 250ml,	134	
	18	Distillation set-up: Rubber Tube, 3000mm	134	
	19	Double burette clamp/holder	335	
	20	Electrolysis Apparatus, student-type (Brownlee)	14,940	
	21	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	67,370	
	22	Funnel, borosilicate, fluted	33,685	
	23	Glass Tubing, Ø 6 mm x Ø 4 mm x 1500 mm long	29,880	
	24	Manometer, Open U-tube	335	
	25	Mortar and Pestle, porcelain, 150 mL.	24,355	
	26	Osmosis Apparatus	335	
	27	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	3,545	
	28	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	14,940	
	29	Rubber Stopper # 0 (for Ø 16mm test tube)	14,940	
	30	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 1 hole	11,730	
	31	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 2 holes	3,545	
	32	Spatula, spoon, porcelain and glazed	33,685	
	33	Stirring Rod, Ǿ 6 mm x 250 mm long	33,685	
	34	Test tube brush	33,685	
	35	Test Tube, borosilicate, Ǿ 16 mm x 150 mm long	346,265	
	36	Tong, Crucible	14,940	
	37	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	168,425	
	38	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	168,425	
	39	Watch Glass, Ø 90 mm	33,685	
8	1	Algebra Tile Set, plastic	2,279	***144 Calendar Days***
	2	Base Ten Blocks	3,749	
	3	Beads, Ø16mm	1,866	
	4	Blackboard Triangle, 30º x 60º and 45º x 45º	4,162	
	5	Circle Area Demonstrator	3,749	
	6	Compass, Drawing, student type	241,120	
	7	Cuisenaire Rods, 250 pcs/set	3,749	
	8	Elapsed Time (Clock) Set	1,866	
	9	Geoboard, 11 x 11	60,280	
	10	Geoboard, 5 x 5	37,490	
	11	Geostrips	30,140	
	12	Ghost Grid Whiteboard, Mobile Magnetic, 72-inch x 40-inch	2,815	
	13	Linking Cubes	18,745	
	14	Model, Basic 3D Geometrical Collapsible	9,415	
	15	Pattern Blocks, 250 pcs/set	7,498	
	16	Plastic Two-colored Counters, 1-inch diameter, 200 pcs/set	9,330	
	17	Probability Kit	6,028	
	18	Pentominoes	18,745	
	19	Tangrams	6,028	
9	1	Globe, Celestial	24,355	***144 Calendar Days***
	2	Globe, Terrestrial	20,810	
	3	Landform Demonstration Kit	14,940	
	4	Model, Earth Internal Structure, 1/4 part detachable	2,988	
	5	Model, Seismograph	11,395	
	6	Model, Solar System	709	

	7	Model, Sun Internal Structure, 1/4 part detachable	2,988	
	8	Model, Sun-Earth-Moon	24,355	
	9	Model, Tectonics Demonstrator	2,988	
	10	Model, Volcano, cross section	14,940	
	11	Rock Samples, 24 pcs/set, (minerals of 3 rock types)	1,418	
10	1	Model, Animal Cell	2,346	***144 Calendar Days***
	2	Model, Animal Meiosis	2,346	
	3	Model, Animal Mitosis	2,346	
	4	Model, DNA	2,279	
	5	Model, Human Brain	1,883	
	6	Model, Human Circulatory System	4,162	
	7	Model, Human Ear	1,866	
	8	Model, Human Endocrine System	2,279	
	9	Model, Human Eye, 6 parts	1,866	
	10	Model, Human Nervous System	4,162	
	11	Model, Human Nose (Nasal-Throat Anatomy)	1,866	
	12	Model, Female Reproductive System (Pelvic Anatomy)	4,162	
	13	Model, Male Reproductive System	4,162	
	14	Model, Human Skeleton	1,883	
	15	Model, Human Torso	4,871	
	16	Model, Lung Demonstration	1,883	
	17	Model, Pumping Heart	1,883	
	18	Model, Skin Block	3,749	
11	1	Model, Chloroplast	2,346	***144 Calendar Days***
	2	Model, Invertebrates	1,883	
	3	Model, Mitochondrion	2,346	
	4	Model, Plant Cell	2,346	
	5	Model, Vertebrates	3,749	
	6	Protein Synthesis Demonstration Set	2,279	
12	1	Model, Basic 3D Geometrical Solids	3,749	***144 Calendar Days***
	2	Model, Atomic Orbital, 82-pc	335	
	3	Model, Biochemistry Molecular, (262 atom parts)	5,976	
	4	Model, Crystal Structures Set (Graphite, diamond, sodium chloride, carbon dioxide)	5,976	
	5	Model, Molecular, Inorganic/Organic (307-pc)	5,976	
	6	Model, Sublevel Orbitals of the Atom (Quantum)	14,940	
	7	Model, VSEPR, 14 shapes (50-pc)	14,940	
13	1	Basic Lens Set, acrylic	11,730	***144 Calendar Days***
	2	Diffraction slits & Diffraction grating Set	11,395	
	3	Helical Spring	11,730	
	4	Lamp, Halogen, Low voltage	709	
	5	Musical Instrument (Miniature Guitar)	11,730	
	6	Optical Bench Set	11,730	
	7	Prism Set	14,940	
	8	Set of Tools:	2,988	
		Set of Tools: Ball Peen Hammer, handle length is 11-inch, 350g approx. weight, 1 pc/set		
		Set of Tools: Long Nose Pliers, 6-inch, 1 pair/set	1,883	
		Set of Tools: Mechanical Wire Cutter and Pliers, 6.5-inch, 1 pair/set		
		Set of Tools: Precision Screwdrivers Set, 6 pcs/set, with plastic casing, 1 set/set		
		Set of Tools: Screwdriver, flat, 6-inch, 1 pc/set		
		Set of Tools: Screwdriver, phillips, 6-inch, 1 pc/set		
		Set of Tools: Soldering Iron, 60 watts, 1 pc/set		
		Set of Tools: Soldering Lead, Ø1mm, Grade 60/40, Wt.: 1 lb/spool, 1 spool/set		
		Set of Tools: Soldering Paste, 50 grams/can, 1 can/set		
		Set of Tools: Tweezers, stainless steel, with curved tips, 6.5-inch long, 1 pair/set		
	9	Toy Car, non-friction, non-battery	9,330	
	10	Vacuum Tube and Manual Vacuum Pump	3,545	
	11	Dissecting Set with pan	335	
	12	First Aid Kit	1,883	
	13	Glass Cover Slips, 100's/box	22,790	
	14	Glass Slides, 72's/box	22,790	
	15	Microscope, Compound with 4 Objectives	45,580	
	16	Prepared Slide Set, Microscope, 25 pieces	2,988	
	17	Prepared Slide Set, Mitosis and Meiosis	2,279	
14	1	Aneroid Barometer Set (Demonstration Type)	30,140	
	2	Aneroid Barometer, wall-mount	6,028	

	3	Compass, Magnetic	20,810	***144 Calendar Days***
	4	Hand Lens, 10x magnification	3,545	
	5	Sling Psychrometer*	9,415	
	6	Soil pH, Moisture, Sunlight Meter	3,545	
	7	Soil/Test Sieve*	1,883	
	8	Telescope, Astronomical (Reflecting)	708	
	9	Resistance Board	335	
	10	Gloves, Surgical	670	
	11	Hand Lens, 5x magnification	19,080	
	12	Pipette, Beral, 1 mL	252,965	
	13	Gloves, Hand, super nitrile	33,685	
	14	Safety Goggles, polycarbonate	33,685	
15	1	Flashlight with incandescent bulb	6,028	***144 Calendar Days***
	2	Lamp, Desk, Heavy Base	11,395	
	3	Engine Model (Internal Combustion)	335	
	4	Mirror Set, acrylic	11,730	
	5	Strobe Light	3,545	
	6	Microscope, Digital	709	
	7	Calculator, Graphing, non-projectable	14,940	
	8	Calculator, Scientific	194,840	
	9	Digital Clock, tabletop	1,866	
	10	Stopwatch, digital	33,685	
	11	Centrifuge	67	
	12	Electrical Conductivity (Conductivity of Solutions) Apparatus	11,730	
	13	Laboratory Hot Plate with magnetic stirrer	2,346	
16	1	Advanced Electromagnetism Kit	335	***144 Calendar Days***
	2	Air Blower	67	
	3	Archimedes Principle Set	335	
	4	Basic Electronics Kit	335	
	5	Beaker, Plastic 500 mL	335	
	6	Digital Geiger-Muller Counter	67	
	7	DC String Vibrator	3,545	
	8	Dry Cell, 9 volts	335	
	9	Dry Cell Holder (size D)	121,900	
	10	Dry Cell, size D	121,900	
	11	Fuse Holder w/ Fuse	11,730	
	12	Iron Core Rod (non-corrugated)	9,415	
	13	Pair of Bar Magnets	12,056	
	14	Switch, Knife type, Single Pole Single Throw	30,475	
	15	DC Ammeter	11,730	
	16	DC Voltmeter	11,730	
	17	Galvanometer	11,730	
	18	Magnet Wire	4,162	
	19	Miniature Light Bulb	91,425	
	20	Miniature Light Bulb Holder	91,425	
	21	Connector (# 18 copper, AWG stranded): Black, 350mm long with alligator clip on one end and banana plug on the other end	91,425	
	22	Connector (# 18 copper, AWG stranded): Red, 350mm long with alligator clip on one end and banana plug on the other end	91,425	
	23	Connector (# 18 copper, AWG stranded): Yellow, 350mm long with alligator clip on one end and banana plug on the other end.	46,920	
	24	Motor-Generator Model Experiment Set	11,730	
	25	Multimeter, digital	670	
	26	Ring and Ball Apparatus	335	
	27	Ripple Tank Set	67	
	28	Sound Resonance Set: Loudspeaker	335	
	29	Sound Resonance Set: Resonance Tube, close-ended	335	
	30	Sound Resonance Set: Tone Generator	335	
	31	Tuning Fork Set	335	
			6,428,348	

Statement of Compliance

I/We have read and understood the requirements/scope of service/terms of reference and conditions stipulated herein and shall therefore comply to the

conditions set forth in the Contract with respect to this **Section VI. Schedule of Requirements**, if our bid is considered for award.

_____

Name and Signature of Bidder's Authorized Representative

Section VII. Technical Specifications

Technical Specifications

Item	Specification	Statement of Compliance
		[Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidder's statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the applicable laws and issuances.]

Detailed Technical Specifications

Item	Specification	STATEMENT OF COMPLIANCE (State Comply or Not Comply)	BIDDER'S ACTUAL OFFER
1	The tools and equipment supplied is non-toxic	*Provide Sworn undertaking or Manufacturer's Certification*	

Lot No.	Description	Specification	Bidder's Statement of Compliance	Bidder's Actual Offer
LOT 1	BLR-developed Basic Scikit: Ø 9.5mm x 250mm long Stand Rod	**Functional Specifications:** used to interconnect stand base to stand supports; used for suspending pulleys, meter tapes **Performance Specifications:** should effectively interconnect stand base-stand support systems; suspend single pulleys, meter tapes **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Basic Scikit: Ø 9.5mm x 500mm long Stand Rod	**Functional Specifications:** used to interconnect stand base to stand supports in heavier setups **Performance Specifications:** should effectively interconnect stand base-stand support systems in heavier setups **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Basic Scikit: Ø 12.7mm x 1000mm long Stand Rod	**Functional Specifications:** used as vertical support for free fall setup; horizontal support for suspending multiple pulley systems **Performance Specifications:** should be able to support vertically free fall setup; horizontal support for suspending multiple pulley systems **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Basic Scikit: Rail	**Functional Specifications:** used as path rail for motorized and dynamics carts **Performance Specifications:** should be able to serve as path rail for motorized and dynamics carts **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Basic Scikit: Ring with stem	**Functional Specifications:** used to support glasswares in heating activities **Performance Specifications:** should be stable in supporting glasswares		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed Basic Scikit: Test Tube Rack	**Functional Specifications:** used for resting racks for test tubes both for specimen viewing and storage **Performance Specifications:** should be able to keep test tubes in place used for resting racks for test tubes both for specimen viewing and storage **Design Specifications:** please see technical drawing		
LOT 1	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		
LOT 1	BLR-developed SCIKIT BASIC 001: Stand Base	**Functional Specifications:** used as base support of activity equipment setups **Performance Specifications:** should be stable in supporting equipment setups **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 001: Stand Support	**Functional Specifications:** used to support stand base assembly **Performance Specifications:** should provide sturdy support for stand base assembly **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 001: SCIKIT BASIC Storage Case 001 (With Cover and Base Sheathing)	**Functional Specifications:** used as storage for stand bases **Performance Specifications:** should be able to store free fall apparatus set components **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 002: Multiclamp	**Functional Specifications:** used as for interconnecting rods perpendicularly **Performance Specifications:** should be sturdy in interconnecting rods **Design Specifications:** please see technical drawing		
LOT 1	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		
LOT 1	BLR-developed SCIKIT BASIC 002: SCIKIT BASIC Storage Case 002 (With Cover and Base Sheathing)	**Functional Specifications:** Used as storage of multiclamps and test tube holders **Performance Specifications:** should be able to store 25 pieces multiclamp and 5 pieces test tube holders		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 003: Universal Clamp	**Functional Specifications:** is used for securing heated beakers and flasks in place **Performance Specifications:** should be stable in holding heated glasswares **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 003: Universal Bosshead	**Functional Specifications:** for interconnecting rods to increase overall length as activity requirement; can also be used to perpendicularly interconnect rods for lighter loads **Performance Specifications:** should be sturdy in interconnecting rods **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT BASIC 003: SCIKIT BASIC Storage Case 003 (With Cover and Base Sheathing	**Functional Specifications:** used as storage for clamps and bossheads **Performance Specifications:** should be able to store 12 pieces universal clamp and 10 universal bosshead **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Ball Case (with Cover and foam)	**Functional Specifications:** used storage case for the metal balls and metal embedded plastic ball **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Digital Timer Assembly (Digital Stopwatch)	**Functional Specifications:** used to determine time of fall of metal balls or metal embedded plastic ball in free fall activity **Performance Specifications:** should be able to determine time of fall of metal balls or metal embedded plastic ball in free fall activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Metertape with hooks and plastic pointer	**Functional Specifications:** used to measure the height of fall of falling objects in free fall activity **Performance Specifications:** should be able to measure the height of fall of falling objects in free fall activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 12.7mm Steel Spherical Ball	**Functional Specifications:** used as free fall object in free fall activity **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Plastic Spherical Ball with metal screw	**Functional Specifications:** used as free fall object in free fall activity **Performance Specifications:**		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Ø 25mm Steel Spherical Ball	**Functional Specifications:** used as free fall object in free fall activity **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Pad Switch Assembly	**Functional Specifications:** used as second switch to stop the stopwatch in free fall activity **Performance Specifications:** should be able to stop the stopwatch in free fall activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Solenoid Assembly	**Functional Specifications:** used as electromagnet to temporarily suspend the metal balls or the metal imbedded plastic ball in free fall activity **Performance Specifications:** should be able to provide electromagnetism to temporarily suspend the metal balls or the metal imbedded plastic ball in free fall activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): Synchro Box Assembly	**Functional Specifications:** used to simultaneously start the stopwatch and cut-off current to the solenoid **Performance Specifications:** should be able to simultaneously start the stopwatch and cut-off current to the solenoid **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Free Fall Apparatus (Mechanics 001): SCIKIT MECHANICS Storage Case 001 (With Cover and Base Sheathing)	**Functional Specifications:** used as storage case for free fall apparatus set **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-spring loaded	**Functional Specifications:** used as source of action force in Newton's 3rd law of Motion Experiment **Performance Specifications:** should be able to provide action force in Newton's 3rd law of Motion Experiment **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cart-with counterweight	**Functional Specifications:** used as source of reaction force in Newton's 3rd law of Motion Experiment **Performance Specifications:** should be able to provide reaction force in Newton's 3rd law of Motion Experiment **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Cylindrical Mass, 50-gram	**Functional Specifications:** used for loading into each dynamics cart for newton's 2nd Law of Motion experiment		

		Performance Specifications: should be able to load into each dynamics cart for newton's 2nd Law of Motion experiment **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Driving Mass, 3-gram	**Functional Specifications:** use to provide the 'net' force in newton's 2nd Law of Motion experiment **Performance Specifications:** should be able to provide the 'net' force in newton's 2nd Law of Motion experiment **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Leveling Pad Assembly	**Functional Specifications:** used as bottom support of rails **Performance Specifications:** should be able to support rails **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Plastic Hammer	**Functional Specifications:** used to strike the push rod to release spring in spring-loaded dynamics cart **Performance Specifications:** should be able to make push rod release spring in spring-loaded dynamics cart **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Modelling Clay, 1 bar/set	**Functional Specifications:** used as storage case for dynamics carts and accessories set **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): Stopper-Fork Assembly	**Functional Specifications:** used as low inertia string guide in Newton's 2nd Law of Motion Experiment **Performance Specifications:** should be able to provide low inertia string guide in Newton's 2nd Law of Motion Experiment **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): String (thin), 1 ball/set	**Functional Specifications:** used to transmit net force from weight of 3-gram driving massess to pull dynamics carts along rail **Performance Specifications:** should be able to transmit net force from weight of 3-gram driving massess to pull dynamics carts along rail **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed Dynamics Carts-Rail System (Mechanics 002): SCIKIT MECHANICS Storage Case 002 (With Cover and Base Sheathing)	**Functional Specifications:** used as storage case for Dynamics Carts-Rail System (Mechanics 002) and accessories **Performance Specifications:** must store the items for Dynamics Carts-Rail System Set		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: 10-Newton Spring Balance	**Functional Specifications:** used to measure forces with magnitudes equivalent up to the weight of 1 kilogram mass **Performance Specifications:** should be able to measure forces with magnitudes equivalent up to the weight of 1 kilogram mass **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: 250-gram Hooked Mass	**Functional Specifications:** used to provide 5 newton load in simple machines activity **Performance Specifications:** should be able to provide 5 newton load in simple machines activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: 500-gram Hooked Mass	**Functional Specifications:** used to provide 2.5 newton load in simple machines activity **Performance Specifications:** should be to provide 2.5 newton load in simple machines activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Axle and Lever Beam	**Functional Specifications:** used to demonstrate the lever principle **Performance Specifications:** should be to demonstrate the lever principle **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Double Pulley	**Functional Specifications:** used to demonstrate efficiency of pulley combinations **Performance Specifications:** should be able to demonstrate efficiency of pulley combinations **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Dry Cell, AA 1.5V	**Functional Specifications:** used to provide DC power to motorized cart **Performance Specifications:** should be able to provide DC power to motorized cart **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Friction Block	**Functional Specifications:** **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Leveling Hose	**Functional Specifications:** used to check horizontal levelness of surfaces where the rail will be placed **Performance Specifications:** should be able to check horizontal levelness of surfaces where the rail will be placed		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Motorized Cart	**Functional Specifications:** used as constant speed object in uniform speed activity **Performance Specifications:** should be able to move with constant speed object in uniform speed activity **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Single Pulley	**Functional Specifications:** used to demonstrate that a pulley can function to change direction of force **Performance Specifications:** should be able to demonstrate that a pulley can function to change direction of force **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear B	**Functional Specifications:** used to transmit torque to worm gear A **Performance Specifications:** should be able to walk downstairs at least 2 levels **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Spur Gear C	**Functional Specifications:** used to change torque direction of motor torque **Performance Specifications:** should be able to change torque direction of motor torque **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm Gear A	**Functional Specifications:** used to transmit torque to worm with axle **Performance Specifications:** should be able to transmit torque to worm with axle **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: Spare part for Motorized Cart: Worm with Axle	**Functional Specifications:** used to transmit power to motorized cart wheels **Performance Specifications:** should be able to transmit torque to motorized cart wheels **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: String (thick), 1 ball/set	**Functional Specifications:** used to interconnect pulley combinations **Performance Specifications:** should be able to interconnect pulley combinations **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed SCIKIT MECHANICS 003: SCIKIT MECHANICS Storage Case 003 (With Cover and Base Sheathing)	**Functional Specifications:** used as storage case for motorized cart, pulley sets, lever assembly, leveling hoses, and spare parts **Performance Specifications:**		

		Design Specifications: please see technical drawing		
LOT 1	BLR-developed: Friction Board	**Functional Specifications:** **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed: User's Manual (SCIKIT BASIC)	**Functional Specifications:** used as reference guide on assembly of Scikit Basic items **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed: User's Manual (SCIKIT MECHANICS)	**Functional Specifications:** used as reference guide on assembly of mechanics items **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 1	BLR-developed: Experiment Module (SCIKIT MECHANICS)	**Functional Specifications:** used as guides to perform mechanics activities **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 2	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		
LOT 2	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		
LOT 2	BLR-developed Convection Tank (Thermocline Apparatus)	**Functional Specifications:** used to demonstrate liquid convection **Performance Specifications:** should be able to demonstrate liquid convection **Design Specifications:** please see technical drawing		
LOT 2	BLR-developed Heat Conductivity Apparatus	**Functional Specifications:** Used to demonstrate the different thermal (heat) conductivities of five (5) different metals **Performance Specifications:** must be able to demonstrate the different thermal (heat) conductivities of five (5) different metals, with copper as the first metal, followed by aluminum, brass, mild steel and stainless steel. **Design Specifications:** please see technical drawing		
LOT 2	BLR-developed Light Source (Single Slit)	**Functional Specifications:**		

		Performance Specifications: **Design Specifications:** please see technical drawing		
LOT 2	BLR-developed Set of Coils (Transformer)	**Functional Specifications:** used to demonstrate transformer principle **Performance Specifications:** should be able to demonstrate transformer principle **Design Specifications:** please see technical drawing		
LOT 2	BLR-developed Variable Power Supply with 5 pcs. Terminal Board	**Functional Specifications:** used to provide variable AC and DC voltages for student group work **Performance Specifications:** should be able to provide variable AC and DC voltages for student group work **Design Specifications:** please see technical drawing		
LOT 2	Fresh Water Aquarium with Stand	**Functional Specifications:** Used to keep aquatic plants and animals **Performance Specifications:** Must be able to demonstrate interaction among plants and animals in a marine-like environment. **Design Specifications:** please see technical drawing		
LOT 2	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		
LOT 2	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		
LOT 2	BLR-developed: Manipulative Electricity Consumption Meter Model, blackboard	**Functional Specifications:** used to demonstrate electricity consumption **Performance Specifications:** must be able to demonstrate electricity consumption in meter reading **Design Specifications:** please see technical drawing		
LOT 2	BLR-developed: Manipulative Water Consumption Meter Model, blackboard	**Functional Specifications:** used to demonstrate water consumption **Performance Specifications:** must be able to demonstrate water consumption in meter reading **Design Specifications:** please see technical drawing		

LOT 2	BLR-developed: Models of 7-sided to 12-sided Regular Polygons	**Functional Specifications:** used to demonstrate regular polygons **Performance Specifications:** must be able to demonstrate 7-sided to 12-sided regular polygon **Design Specifications:** please see technical drawing		
LOT 2	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		
LOT 2	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		
LOT 3	BLR-developed Storage Cabinet	**Functional Specifications:** Used for storage of science and mathematics equipment **Performance Specifications:** **Design Specifications:** please see technical drawing		
LOT 4	Bromothymol Blue Indicator	**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 range : 0.01% - 0.04% aqueous solution 3. Capacity: 100 mL per bottle 4. With Material Safety and Data Sheet 5. The chemical must be in original packing/HDPE white threaded chemical seal pack bottle. 6. Properly labeled with the chemical name, concentration, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years after pre-delivery inspection. 7. HDPE signifies a "resin identification code" either embossed or engraved in the container as coded.		
LOT 4	Gentian Violet Solution	**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		

		3. With Material Safety and Data Sheet 4. The chemical must be in original packing/HDPE white threaded chemical seal pack bottle. 5. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years after pre-delivery inspection. 6. HDPE signifies a "resin identification code" embossed or engraved in the container as coded.		
LOT 4	Iodine Solution	**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. Alternate name: Lugol's Solution 4. With Material Safety and Data Sheet 5. The chemical must be in original packing/HDPE white threaded chemical seal pack bottle. 6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years after pre-delivery inspection. 7. HDPE signifies a "resin identification code" either embossed or engraved in the container as coded.		
LOT 4	Microscope's Immersion Oil, 100 mL/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, non-hardening, clear and transparent 3. Type A 150 cSt and with Refractive index: 1.515 - 1.518 (as indicated in MSDS, product label or certificate) 4. With Material Safety Data Sheet 5. The chemical must be in original packing/HDPE white threaded chemical seal pack bottle. 6. Properly labeled with chemical name, name of the manufacturer, appropriate hazard warning, manufacturing and expiry date. Expiration shall be at least two years after pre-delivery inspection. 7. HDPE signifies a "resin identification code" embossed or engraved in the container as coded.		
LOT 4	Yeast, granules, active dry, 100 grams / bottle	**Functional Specifications:** Used to break down some of the starch and sugar in the mixture to produce more yeast cells and carbon dioxide gas. **Performance Specifications:** Must be able to illustrate asexual type of reproduction. **Design Specifications:** 1. Active dry yeast in granules		

		2. Color: Ivory light brown 3. Capacity: 100 grams per bottle 4. With Material Safety and Data Sheet 5. The chemical must be in original packing/HDPE white threaded chemical seal pack bottle. 6. Properly labeled with chemical name, the name of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date. Expiration shall be at least two years after pre-delivery inspection. 7. HDPE signifies a ""resin identification code"" embossed or engraved in the container as coded.		
LOT 4	Benedict's Solution, 100ml/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) green - 0.5 to 1.0 g (traces of simple reducing sugars) b) yellow - 1.0-1.5 g (low reducing sugar) c) orange - 1.5 to 2.0 (for moderate) d) brick -red precipitate - 2.0 for high presence of reducing sugar **Design Specifications:** 1. Form: Liquid 2. Color: Aqua blue 3. Chemical Formula: 4. Mass per bottle: 100 mL 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, 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 after pre-delivery inspection. 9. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 10. Lot analysis is printed on the label 11. Comes with a brand		
LOT 4	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. **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 green color which indicates the presence of boron or its ion **Design Specifications:** 1. Form: Crystalline solid 2. Color: Colorless or white 3. Odor: Odorless 4. Chemical formula: H_3BO_3 5. Mass/bottle: 100 g		

		6. Comes in original packing 7. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning 8. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 9. Expiration dates should be at least two years after pre-delivery inspection. 10. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 11. Lot analysis is printed on the label 12. Comes with a brand		
LOT 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 color which indicates the presence of the zinc ion **Design Specifications:** 1. Form: Powder, crystals or granules 2. Color: White 3. Chemical Formula: CaCl2 4. Mass per bottle: 100 grams 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, 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 after pre-delivery inspection. 9. Accompanied with Certificate of Analysis and 10. With MSDS (Material Safety Data Sheet) 11. Lot analysis is printed on the		
LOT 4	Chemicals storage box	**Functional Specifications:** Used to separate, arrange and hold/contain/store chemicals inside **Performance Specifications:** Must be able to: a) separate, arrange, and hold/contain/store small- and medium-sized chemicals by utilizing dividers (width/length) for compartmentalizing to increase/decrease available space for bigger or smaller size, which resists most solvents and chemicals, b) protect items against dirt, dust and damage and c) makes contents inside the box easy to see **Design Specifications:** 1. Bin Type: Dividable grid container 2. Material: Polypropylene (plastic) with the following dimensions: a) Depth/ Length: 22-1/2 inches (min) b) Width: 17 1/2 inches (min)		

		c) Height: 12 inches (min) 3. Color: Clear (transparent) 4. Shape: Rectangular 5. Capacity: 35 lbs maximum 6. With eleven (11) long divider slots 7. With fifteen (15) short divider slots to to allow sub-division of the containers, down to a 1-1/8-inch square compartment size 8. With large, flat areas on all four sides for content identification 9. With comfort grip handle 10. With strong stacking rims and multi-ribbed external sides to provide high impact strength11. The container can be divided into compartments by length and/or width 12. Accessories a. With lid/cover i) Shape: Rectangular ii) Material : Polypropylene (Plastic) with the following dimensions: (LxWxH) : 22.5 inches (min) x 1 inch (min) x 17.5 inches (min) iii) Color: Clear (transparent) Snap on molded lid/cover guides provide secure stacking Lids/covers snap securely on to box b) Dividers, width (short) i) Shape: Rectangular ii) Material: Polyethylene/polypropylene (plastic) with the following dimensions: iii) Length : 15 3/4 inches (min) iv) Height : 11 1/2 inches (min) Quantity: 6 pc Color: Gray/black c) Dividers, (length/long) i) Shape : Rectangular ii) Material : Polyethylene/polypropylene (plastic) with the following dimensions: iii)Length: 22 1/2 inches (min) iv) Height : 11 1/2 inches (min) d) Label holder i) Shape: Rectangular ii) Material : Polypropylene, plastic with the following dimensions: iII) Length : 5 inches (min) iv) Width : 8 inches (min) v) Color: Clear (transparent) vi)Pocket-style, hanging label holder. 13. Must be packed in a sturdy box 14. Comes with a brand		
LOT 4	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 green color on the Bunsen flame **Design Specifications:** 1. Form : Crystalline solid 2. Color : Blue 3. Odor : Odorless 4. Chemical formula : CuSO4 5. Mass per bottle : 100 g 6. Comes in original packing 7. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning 8. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 9. Expiration dates should be at least two years after pre-delivery inspection. 10. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 11. Lot analysis is printed on the label 12. Comes with a brand		
LOT 4	Hydrochloric Acid, HCl, 6M, 500 mL / bottle	**Functional Specifications:** Used to : a) neutralize a base to demonstrate double decomposition (neutralization) reaction b) as a titrant added from an acid burette in acid base titration c) as a cleaning medium in Flame Test **Performance Specifications:** a) Must neutralize a base to produce salt and water b) used as a titrant added from an acid buret to a known quantity of the analyte (the unknown solution) until the reaction is complete In acid-base titration. Knowing the volume of titrant added allows the determination of the concentration of the unknown using the formula Nb=NaVa/Vb c) must clean nichrome wires used in Flame Test and convert the specimen into their metallic chloride to emit different very distinct colored flames d) pH value : pH 1 **Design Specifications:** 1. Form: Corrosive liquid 2. Color: Clear, colorless or slightly yellow 3. Odor: Pungent odor. 4. Chemical fomula : HCl 5. Concentration: 6 M 6. "Percent by mass : 36-37 % HCl by mass " 7. Specific gravity:1.18 8. Quantity (volume) :500 mL 9. Comes in original packing 10. With Certificate of Traceability) indicating accuracy traceable to NIST standards of standandarized solution 11. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning, 12. With manufacturing and expiry date,		

		chemical assay, and other useful information regarding the product. 13. Expiration dates should be at least two years after pre-delivery inspection. 14. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 15. Lot analysis is printed on the label 16. Comes with a brand		
LOT 4	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. Form: Relatively soft lightweight solid metal 2. Color: Shiny silvery gray--white 3. Chemical formula : Mg 4. Form: Solid (ribbon) 5. Mass per roll: 25 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, with appropriate hazard warning 9. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 10. Expiration dates should be at least two years after pre-delivery inspection. 11. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 12. Lot analysis is printed on the label 13. Comes with a brand		
LOT 4	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. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, 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 after pre-delivery inspection. 8. Accompanied with Certificate of Analysis and MSDS (Material Safety Data		

		Sheet) 9. Lot analysis is printed on the label 10. Comes with a brand		
LOT 4	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 acid-base 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. Form: Solid powder 2. Color: White to cream powder 3. Odor: Odorless 4. Chemical formula : C20H14O4 5. Mass per bottle: 100 g 6. Comes in original packing 7. Properly labeled with full chemical name, chemical formula,t he name and address of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date, chemical assay, and other useful information regarding the product. 8. With manufacturing and expiry date, chemical assay, and other useful information regarding the product. 9. Expiration dates should be at least two years after pre-delivery inspection. 10. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 11. Lot analysis is printed on the label 12. Comes with a brand		
LOT 4	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. Form: Crystalline solid 2. Color: White 3. Chemical formula : KCl 4. Mass per bottle: 100 g 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date, chemical		

		assay, and other useful information regarding the product. 7. Expiration dates should be at least two years after pre-delivery inspection. 8. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 9. Lot analysis is printed on the label 10. Comes with a brand		
LOT 4	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 and its effect on the rate of chemical reaction **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 light 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. Form: Granules and crystals 2. Color: White 3. Chemical formula : KI 4. Mass per bottle: 100 g 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date, chemical assay, and other useful information regarding the product. 7. Expiration dates should be at least two years after pre-delivery inspection. 8. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 9. Lot analysis is printed on the label 10. Comes with a brand		
LOT 4	Sodium Hydroxide (Lye), 250 grams/bottle	**Functional Specifications:** Used : a) to neutralize an acid to demonstrate double decomposition (neutralization) reaction b) as a titrant added from a base burette in acid base titration **Performance Specifications:** a) Must be able to neutralize an acid to form salt and water 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 **Design Specifications:** 1. Form: Hygroscopic solid 2. Color: White semi-transparent 3. Odor: Odorless 4. Chemical formula : NaOH 5. Mass per bottle: 250 grams 6. Comes in original packing 7. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, with appropriate hazard warning, with manufacturing and expiry date, chemical assay, and other useful information regarding the product. 8. Expiration dates should be at least two years after pre-delivery inspection. 9. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 10. Lot analysis is printed on the label 11. Comes with a brand		
LOT 4	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 color which indicates the presence of the zinc ion **Design Specifications:** 1. Form: Crystal or granules or powder 2. Color: White 3. Chemical Formula : ZnCl2 4. Mass per bottle: 100 grams 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, 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 after pre-delivery inspection. 9. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 10. Lot analysis is printed on the label 11. Comes with a brand		
LOT 4	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. Form : Pellets/mossy 2. Color : Bluish white,but in ordinary conditions and at temperatures above 200 °C, loses its elasticity and becomes a grey		

		powder 3. Chemical Formula : Zn 4. Mass per bottle: 100 grams 5. Comes in original packing 6. Properly labeled with full chemical name, chemical formula, the name and address of the manufacturer, 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 after pre-delivery inspection. 9. Accompanied with Certificate of Analysis and MSDS (Material Safety Data Sheet) 10. Lot analysis is printed on the label 11. Comes with a brand		
LOT 5	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. Minimum Dimension of unit : 350 mm x 80 mm x 80 mm (H x W x D) 3. Powered by AA or AAA dry cells 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		
LOT 5	Anemometer, Simple	**Functional Specifications:** Used to determine wind speed by calculating the number of rotations the rotor makes per unit time **Performance Specifications:** Should be able to determine wind speed by calculating the number of rotations the rotor makes per unit time **Design Specifications:** 1. Sensitive/low friction model for demonstrating the principle of wind velocity. Can rotate with human blow 2. Made of corrosion resistant material 3. Consist of 4 cups (5 cm diameter) mounted on a hub and on an axle securely affixed to a tough and stable base. 3-cups are colored black with one red cup (or any bright colors) to facilitate counting of rotations. 4. Minimum Dimension: 220 mm x 160 mm (H X W) 5. With No Removable Parts 6. All labels and inscriptions should be in English		

		7. The item should be free from toxic materials 8. The item should be branded		
LOT 5	Coefficient of Linear Expansion	**Functional Specifications:** Used to verify coefficient of linear expansion of some metals **Performance Specifications:** Should be able to verify coefficient of linear expansion of some metals **Design Specifications:** 1. With steam jacket pipe, made of brass, 500 mm long x 25 mm dia., with steam inlet and outlet, with attachment tube for inserting rubber stopper which in turn is inserted with thermometer 2. Steam jacket pipe supported by a rigid metal base; with alignment and lock mechanism when inserting expanding rod under study, 27in X 4.5in X 1.5in (L x W x T) minimum 3. With dial dial gauge 0-10 mm, 0.01 mm readability 4. Supplied with 4 mm x 500 mm brass, copper, steel rods; rods should be free from sharp, pointed edges 5. With English User's Manual that includes operation guide		
LOT 5	Flask, Florence, glass, round bottom, 500 mL	**Functional Specifications:** Used to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina' **Performance Specifications:** Should be able to contain liquids with unobstructed view of liquid inside; for activity on 'how eye focusses light rays to create an image in the retina' **Design Specifications:** 1. 500 mL capacity 2. Round bottom 3. NO Graduations 4. Made of glass 5. Minimum dimensions: 110 mm x 210 mm (bulb diameter x height)		
LOT 5	Laser Light	**Functional Specifications:** Used to produce laser beam for diffraction activities **Performance Specifications:** Should be able to produce laser beam for diffraction activities **Design Specifications:** 1. Pen type laser, red output 2. Powered by, 1.5 volts size AA or AAA dry cells 3. With ON-OFF switch 4. Minimum body dimensions: 12 mm diameter x 135 mm length 5. Function: Should be able to project clearly a laser spot to a distance of 5 meters minimum		
LOT 5	Manometer, Open U-tube with Nakamura-type Water Pressure Apparatus	**Functional Specifications:** Used to measure pressure difference of fluids **Performance Specifications:** Should be able to measure pressure difference of fluids		

		Design Specifications: 1. Open U-tube glass manometer tube with a 50cm arm with funnel top on one arm and a 2.5 cm rifted tip on another arm for easy connection with silicone-rubber tubing, glass wall 1mm thickness, 4-6 mm inner diameter 2. A millimeter scale is fitted between the arms of the tube 3. U-tube is mounted on a wooden board, fixed on a wooden stand for vertical U-tube is mounted on a wooden board, fixed on a wooden stand for vertical mounting 4. Includes SIMPLE WATER PRESSURE APPARATUS (Nakamura type) -its body can be made to rotate around a rigid tube. The rigid tube is L-bent to be inserted into the pressure apparatus, so that the pressure apparatus can be rotated -with 10 pcs spare diaphragms per set 5. Includes 1 meter silicone-rubber tubing for interconnecting U-Tube manometer and the simple water pressure apparatus		
LOT 5	Ticker Timer Set	**Functional Specifications:** Used to measure and record short time intervals by marking "ticks" on paper tape **Performance Specifications:** Should be able to measure and record short time intervals by marking "ticks" on paper tape **Design Specifications:** 1. Operates between 6 to 12V a.c. and produces dots on the tape using a carbon paper disc at frequency the same with the mains. Has a rugged plastic base and screw type binding posts; 2. Supplied with: 40mm carbon paper disc (100pcs) 15mm wide ticker tape (3 rolls) c-clamp		
LOT 5	Balance, Toploading, Electronic	**Functional Specifications:** Used to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability **Performance Specifications:** Must be able to measure an object's mass up to 500 g capacity accurate up to 0.01 g readability to determine mass relationship in a chemical reaction **Design Specifications:** 1. Type: Digital 2. Shape of pan: Rectangular 3. Material of pan: Stainless steel 4. Removable high strength stainless steel weighing platform 5. Shape of housing: Optional 6. Load/Capacity: 500 g 7. Readability/Accuracy: 0.01 g 8. Repeatablity: 0.01 g 9. Comes with 500 g span calibration mass 10. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 11. Power Supply : 220-240V/ 50Hz 12. With large Liquid crystal display (LCD) with backlight 13.With multiple weighing units and overload protection 14. With automatic calibration 15. With standard RS 232 interface 16. Parts counting and percentage weighing 17.With Statement of Accuracy (Certificate		

		of Traceability) indicating accuracy traceable to NIST standards 18. Includes Operations Manual in English, 19. With power cord, AC Adapter and 4 AA batteries 20. Comes with training on the installation, use, and repair and maintenance, and storage 21.Comes with a brand with more than 100 years in the weighing industry		
LOT 5	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. Shape : Features magnetic damping, 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: 150 mm diameter 6. Material of base : Cast metal with corrosion resistant finish 7. Material of main beam: Aluminum alloy 12. With spring, loaded zero-adjust compensator 13. With self-aligning agate bearings, precision ground steel knife edges 14. With magnetic dampening to minimize oscillation and speed weighing, 15. With adjustment knob for taring 16. With iron stand assembly (stand rod and C clamp) forfastening on the table and suspending the triple beam bakance on air for specificgravity determination 17 Capacity: 2610grams 18 Accuracy: 0.1 gram readability 19. 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 20. Equipped with three separate masses: a) 2 pc 1,000 grams counter weights b) 1-pc 500 grams counter weight 21. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 22 With English User's manual that contains Operation guide and also indicates formula and procedure in determining specific gravity and taring. 23. Comes with training on the use, care, proper storage, repair and maintenance with trouble shooting 24. For durability and sensitivity, parts should be able to withstand environment/solutions. 25. Enclosed in a polystyrene and packed in a sturdy box 26. Comes with a brand with more than 100 years existence in the weighing industry		
LOT 5	Calorimeter	**Functional Specifications:** Used to measure heat effects or heat of reactions		

		Performance Specifications: a) Must be able to measure the heat effects or heat of reactions, the heat of neutralization of an acid and heat of fusion in the laboratory b) to distinguish between exothermic and endothermic processes **Design Specifications:** 1. Type: Double-walled 2. Shape: Cylindrical double wall with air insulation between two polished spun vessels 3. Material : Two polished spun aluminum vesselswith the following dimensions: A) Outer vessel size: a) Height:139-152 mm b) Depth:100-102 mm c) Capacity : 300 mL B) Inner vessel size: a) Height: 80-89 mm b) Depth: 63-77 mm c) Capacity : 100-200 mL 4. Accessories: a) With a plastic insulator ring or fiber washer for insulating and supporting one vessel within the other, protects the styrofoam insulation against damage and liquid spills. b) Insulated Stirrer c) A clear transparent molded cover or plastic lid with a filler cap, with two holes (one hole is for the rubber stopper that holds the hermometer and the other hole for the stirrer d) Rubber stopper with one hole e) With 17 mm thick styrofoam liner /sleeve to insulate the inner vessel 5. With Instruction Manual in English that contains precise instructions on how to conduct common calorimetry experiments. 6. With User's Manual on the use, care, maintenance, trouble shooting and proper storage in English 7. With Activity Sheets/Teachers Manual in English 8. For numbers #5 to 7; technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 7. Comes with a brand		

LOT 5	Flask, Volumetric, borosilicate 250 mL	**Functional Specifications:** Used to measure/prepare/contain a precise volume of standard solutions at a certain temperature and precise dilution of solutions up to 250 mL **Performance Specifications:** Must be able to measure/prepare/contain a precise volume of standard solutions at a certain temperature and precise dilution of solutions up to 250 mL **Design Specifications:** 1. Type: Class A 2. Shape : A round or pear-shaped bulb, a long thin neck topped by a snap cap and with flat bottom 3. Material of body: Borosilicate , clear, transparent and bubble-free, glass with the following dimensions: a) Height: 225 mm b) Outside diameter : 78 mm (approx.) c) Size: 250 mL d) Tolerance: ± 0.12 mL 4. With heavy duty rim 5. Comes with snap cap a) Material of snap cap :High density plastic (polyethylene) b) With octagonal grip c) Snap-cap : No. 250 d) Color of snap cap: Blue 6. Must meet ASTM E- 694 for volumetric ware, ASTM E-542 for calibration of volumetric ware and ASTM E-288 for volumetric flasks. 7. Calibrated "to contain" (marked "TC" or "IN") 8. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 9. Must be free from breakage, cracks, sharp rims and other defects 10. Packaging : Roll up glassware in newspaper and secure with a piece of masking tape and place in a bubble pouch and individually packed in a sturdy box 11. Comes with a brand,with more than 100 years existence in the glasswares industry		
LOT 5	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. Type: Class A2.Shape: Narrow cylindrical container with a small turned-out lip 3. Materia l: Borosilicate, clear and transparent bubble-free, glass with the following dimensions : a) Outside Diameter:13-14 mm b) Height: 177-178 mm c) Thickness range :1.3-1.4 mm d) Tolerance: ± 0.20 4. Capacity: 10 mL 5. Graduation Range : 1 to 10 mL 6. Graduation interval : 0.1 mL 7. Calibrated to deliver (TD) 8. All markings are in permanent white enamel 9. With pouring spout 10. Single metric scale, with plastic		

		bumper guard 11. Glass hexagonal base (non-detachable) 12. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 13. Placed in bubble wrap,and packed individually in a compartmentalized box 14. Must be free from breakage, cracks and sharp rim 15. Comes with a brand, with over 100 years existence in the glasswares industry		
LOT 5	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. Type: Class A 2. Shape: Narrow cylindrical container with a small turned-out lip 3. Material : Bubble-free, borosilicate, clear and transparent glass with the following dimensions: a) Outside Diameter: 29-31 mm b) Height: 254-256 mm c) Thickness range :1.3-1.4 mm d) Tolerance: ± 0.60 mL 4. Capacity: 100 mL 5. Graduation range: 5 to 100 mL 6. Graduation Interval : 1 mL 7. Calibrated to deliver (TD) 8. All markings are in permanent white enamel 9. With pouring spout 10. Wtih single graduated metric scale with plastic bumper guard 11. With glass hexagonal base (non-detachable) 12. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 13. Placed in bubble wrap,and packed individually in a compartmentalized box 14. Must be free from breakage, cracks and sharp rim 15. Comes with a brand with over 100 years existence in the glass industry		
LOT 5	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. Type : Serological, transfer type 2. Shape : Straight tube with one constricted end 3. Material : Borosilicate, reusable, clear, transparent bubble-free glass 4. Marked "TD" - To deliver 5. Graduated to tip, zero at top		

		6. Color code for 10 mL cap :Orange 7. Top end is constricted 8. Capacity: 10 mL 9. Graduation interval: 0.1 mL 10. Tolerance: ±0.06 mL 11. Graduation is in descending scale 12. Graduations , approximate volumes, capacity, and other markings are in permanent amber stain which resists aggressive washing solutions 13. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 14. Accessory : With Rubber pipettor a) Type: Three (3) -way Safety Bulb-type Pipet Filler 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 15. 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 sturdy box 16.Comes with a brand with more than 100 years existence in the glasswares industry		
LOT 5	Hydrometer for heavy liquids	**Functional Specifications:** Used to measure relative density of heavy liquids based on the concept of buoyancy **Performance Specifications:** Must be able to measure relative density of heavy liquids based on the concept of buoyancy, like glycerine **Design Specifications:** 1. Type: Long Plain Form 2. Shape : Long cylindrical hollow glass tube with a bulb weighted at the bottom with a steel ballast with graduations on the narrow stem for measuring 3. Material:Glass, with the following dimensions: a) Length: 300 - 330mm b) Tolerance: ±0.01 4. Specific Gravity Range: 1.00 - 2.00 5. Subdivision: 0.01 6.Comes with a ballast a) Material of ballast : Glass b) Heavy metals (lead, mercury)- free metal ballast c) Material inside the ballast : Steel pellets and d) With a binder 7. Individually serialized 8. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 9. Individually packed in a protective hard plastic case 10. With User's Manual in English 11. With Activity Sheets/Teacher's Manual in ENglish 12.For numbers #10 to 11; the technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 13. Must be free from breakage, cracks and sharp parts 14. Must have a brand		
LOT 5	Hydrometer for light liquids	**Functional Specifications:** **Performance Specifications:** Must be able to measure the relative density of liquids lighter than water based on the concept of buoyancy **Design Specifications:** 1. Type: Long Plain Form 2. Shape : Long cylindrical hollow glass tube with a bulb weighted at the bottom with a steel ballast with graduations on the narrow stem for measuring 3. Material: Glass , with the following dimensions: a) Total Length: 300 - 330 mm b) Graduated scale length: 305 min c) Subdivision: 0.005 d) Tolerance: ±0.005 5. Specific Gravity Range: 0.70 to 1.0 6. Accuracy: ±1 subdivision 7. Comes with a ballast a) With heavy metals (lead, mercury)- free metal ballast and glass b) Material inside the ballast: Steel pellets and c) With a binder 8. Individually serialized 9. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 10. Individually packed in a protective hard plastic case 11. With User's Manual in English 12 With Activity Sheets/Teacher's Manual in ENglish 13.For For numbers #11 to 12; the technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) For User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 13. Must be free from breakage, cracks and sharp parts 11 Must be free from breakage, cracks, chipped and sharp parts 12 Must have a brand		
LOT 5	pH Meter, hand-held	**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 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. Comes with Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 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. Must have a brand		
LOT 5	Thermometer, Laboratory type, Alcohol, -20ºC to 110ºC	**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. Shape : 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 3. Material : Glass 4. Color: White 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 12. Dimensions: 13. Range: -20°C to 110°C 14. Division: 1°C 15. Length: 300 mm (minimum) 16. Accuracy: ± 1° C 17. Diameter: 5.8 to 6.2 mm 18. Immersion line : 76 mm 19. With Statement of Accuracy (Certificate of Traceability) indicating accuracy traceable to NIST standards 20. Must be free from breakage , cracks, chipped and sharp edges nd other defects 21. Comes with a brand		
LOT 5	Thermometer, Classroom, wall-mount	**Functional Specifications:** Used to determine the prevailing air temperature inside a room in real time **Performance Specifications:** Should be able to determine the prevailing air temperature inside a room in real time **Design Specifications:** 1. Alcohol filled red color, glass tube type 2. Overall length: 762 mm 3. Tube containing liquid column: 23 inches 4. Temperature range: -40°C to +50°C		

		5. Fahrenheit scale optional 6. Must be branded		
LOT 5	Thermometer, Clinical, digital	**Functional Specifications:** Used to determine human body temperature. **Performance Specifications:** Must be able to measure body temperature digitally. **Design Specifications:** 1. Clinical Thermometer, for armpit use 2. With yellow or white background, nice looking and easy reading 3. Temperature range: 35˚C - 42˚C and 94˚F - 108˚F (dual scale) 4. Accuracy: 0.1˚C and 0.2˚F 5. Subdivision: 0.1 in Celsius scale and 0.2 in Fahrenheit scale 6. Mercury in glass 7. Length: 105mm (minimum) - 115mm (maximum) 8. With plastic tube case 9. Should be branded.		
LOT 5	Universal pH Paper, pH 0-14, 100 strips/pack	**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 11. Measures pH 0-pH 14 12. Comes with a brand		
LOT 5	Balance, Double-pan, 500-gram	**Functional Specifications:** Used to compare object masses. **Performance Specifications:** Must be able to measure mass of an object up to 1000 grams. **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. 2) Capacity: 2,000 grams 3) Readability: 0.002 kg. 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: Ø15.2 cm 7) Platform type: Plate (metal) 8) Dimensions (w x d x h): 35.5 cm x 24.1 cm x 17.8 cm 9) Net Weight: 2.1 kg. 10) Comes with four (4) Weights as follows: 10.1) 1 pc. 1,000-gram Weight 10.2) 1 pc. 500-gram Weight 10.3) 1 pc. 200-gram Weight 10.4) 1 pc. 100-gram Weight 11) Comes with an Instruction Manual in English. 12) Comes with a storage plastic case. 13) Should be branded.		
LOT 5	Measuring Kit (Volume of Liquids)	**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) iv) 1/2 tsp (2.5mL) v) 1/4 tsp (1.25mL) 2) Features include both customary and metric measurement showing appropriate graduations in each kind of measuring tools. 3) Permanent graduations and labels 4) Materials used should be free from toxic materials.		
LOT 5	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: 1,000 mm; 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; 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; and		
LOT 5	Protractor, student-type	**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, 180º; 2. Ø150mm (or 75mm radius), 1mm thick (minimum); 3. Angular graduations are in degrees, from 0º to 180º. 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		
LOT 5	Ruler, student-type	**Functional Specifications:** Used to measure length and draw straight lines **Performance Specifications:** Must be able to measure length of objects in flat surfaces up to 30cm in Metric and 12" in English standards of measurement. **Design Specifications:** 1. Ruler, plastic, transparent, smooth surface, and 1 mm thick (minimum); 2. Approximate Width x Length: 28 mm x 314 mm; 3. Graduations: Metric graduations on one side while English graduations on the other side: *Metric graduations are in centimeters, from 0 cm to 30 cm, with every cm subdivided by 10. *English graduations are in inches, from 0 inches to 12 inches, with every inch subdivided by 16. 4. Clear, readable black, non-groove permanent prints (will not fade and cannot be scratched off); 5. Bendable up to U-shape when held at both ends; and 6. The item shall be free from toxic materials.		
LOT 5	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 1,000 grams.		

		Design Specifications: 1. Maximum Capacity: 2,500 grams or 25 kilogram 2. Main body approximate L x W: 180mm x 70mm Thickness/Height: 30mm 3. Graduations are in grams and kilograms. Minimum graduation is 5 grams with zero as the starting point. 4. Color: Any Color 5. Comes with an Instruction Manual in English 6. Should be branded.		
LOT 5	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. Weighing Scale, 22 pound/10 kg. Capacity, starting from zero (0) to 10kg. 2. Dual mode English/metric display that displays weight in pounds and grams. 3. Has a large round dial display for easy use. 4. Includes a removable stainless steel bowl which is dishwasher safe. This weighing scale is a classic rotary dial mechanical kitchen scale 5. Color: Blue 6. Format: Mechanical kitchen scale 7. Mechanism Type: Spring Lever 8. Measurement units: Pounds/Kilograms 9. Display Type: Round speedometer type dial 10. Scale Size: 8.3" (210mm) wide x 9.25" (235mm) deep 11. Dial Increments: 1 oz. / 50 g.		
LOT 5	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) Mechanical Dual Reading lbs/kg bathroom scales (analog) 2) Comes with a free Body Mass Index Chart printed and laminated on glossy paper (Font Height: 1 cm. minimum, Style: Century Gothic or Arial) 3) Maximum Capacity: 120 kgs/264 lbs 4) With two years warranty 5) Should be made of metal and plastic combination with powder coating finish for metal parts. 6) Will remain stable when a child steps on it 7) The item should be free from toxic materials.		
LOT 5	Tape Measure, 1.5 meters	**Functional Specifications:** Used to quantify the size of an object or the distance between objects **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 2. Made of flexible fiberglass fabric with		

		metal end pieces 3. Color: White with black 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.		
LOT 6	Hexagonal Weigh Dishes Set, 50mL, 500 pcs/pack	**Functional Specifications:** Used for containment of relatively small amount of solid or liquid specimens for weighing **Performance Specifications:** Should be able to contain relatively small amount of solid or liquid specimens for weighing **Design Specifications:** 1. Made of hexagonal shapes plastic 2. Easily bent into pouring spouts to facilitate in sample transfers and reduce the risk of spills. 3. Ideal for handling solids or liquids during weighing procedures. 4. Flat bottoms and sloping sides allow these disposable dishes to be easily stacked and conveniently stored. 5. Must be branded		
LOT 6	Reaction Plates with 6 Wells	**Functional Specifications:** Used to contain small amount of samples of specimens under study **Performance Specifications:** Should be able to contain small amount of samples of specimens under study **Design Specifications:** 1. Made of clear, non-toxic plastic material that is free from sharp edges. 2. Plate Shape: Rectangular 3. Plate Length: 110 mm-120mm 4. Plate Width: 85 mm -100mm 5. Six Well per Plate 6. Well Shape: Circular/ Round 7. Well diameter: 30 mm -35 mm 8. Well deep: 6mm-8mm 9. Well capacity: 1.6 mL -2.0mL 10. Used for soil and water testing 11. Must be branded		
LOT 6	Sedimentator Tube	**Functional Specifications:** Used to demonstrate how soil sediments settle in water **Performance Specifications:** Should be able to demonstrate how soil sediments settle in water **Design Specifications:** 1. 11inches - 12inches height with a diameter of 1 inch minimum 2. Sealed and leak free 3. The body made of clear, transparent plastic tube. 4. With different sediment and water 5. Functions: a. Use for observing movement, deposition, and layering of sediments and organic materials. b. Observations apply to sedimentary rock formation and fossil formation 6. With English User's Manual that includes a. operation guide.		

		b. Guide on how to use c. Student Activity Sheets		
LOT 6	Force Table	**Functional Specifications:** Used to demonstrate the vector nature of forces **Performance Specifications:** Should be able to demonstrate the vector nature of forces **Design Specifications:** 1. Table: material-cast iron, diameter: 40 cm approx., with stable stand support, 30 cm height minimum 2. With leveling screw 3. 360° protractor scale, 0.5°-1° resolution, texts and graphics 20 mm length approx. 4. Can demonstrate combination of at least 3 coplanar forces in equilibrium 5. Includes the following accessories composed of at least: a. 3 pieces load hangers -100 grams each b. additional slotted masses to be loaded on each load hanger3 pieces-100 grams3 pieces- 50 grams3 pieces- 20 grams3 pieces- 10 grams c. 3 pieces pulley clamps with guide pulley to be clamped on the Force Table d. 1 piece center rod/ post, nickle plated metal, threaded to be mounted on the center of the Force Table e. 1 piece center/ fastening ring, 35 mm diameter x 2 mm thickness, nickle plated metal f. 4 meters string for hanging loads (crochet type), can support 500 grams load with out breaking 6. With English User's Manual that includes Assembly and Operation Guide 7. Includes training on use and maintenance		
LOT 6	Slinky Coil, metal	**Functional Specifications:** Used to demonstrate longitudinal waves **Performance Specifications:** Should be able to demonstrate longitudinal waves **Design Specifications:** 1. 3inches diameter x 4 inches long minimum; and 2. zinc or nickel plated		
LOT 6	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 4inches x 6inches (101.6mm ± 1mm x 152.4mm ± 1mm) 2. Shape: rectangular 3. Material: Fine, soft, lint-free paper 4. Quantity: 50 sheets/pack 5. Must be packed in a resealable plastic		
LOT 6	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 performing rinsing and washing activities. **Design Specifications:** 1. Translucent		

		and non-toxic plastic material 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		
LOT 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:** 1. Type: Technical use 2. Shape of filter paper : Square 3. Material: Cellulose with the following dimensions: a) Length: 580 mm b) Width : 580 mm 4. Color: White to cream 5. Grade: 0905 6. Surface: Creped 7 Initial Filtration Speed: 5 sec/10 mL 8. Particle retention: 25 µm 9. Pore Size (Metric): 12 to 25µm 10. Flow rate: High 11. Wet strengthened 12. Packed in brown filter paper tube 13. Comes with a brand		
LOT 6	Nichrome wire. 0.4, 100 ft	**Functional Specifications:** Used as a wire loop and heating element on which a metal salt or solid ionic compound is made to adhere into it and is heated to emit a characteristic color on the Bunsen flame to identify the particular metal present in the compound **Performance Specifications:** Must be used as a wire loop on which a metal salt or solid ionic compound is made to adhere to, and is heated to emit a characteristic color on the Bunsen flame to identify the particular metal present in the compound in a laboratory activity, the Flame test **Design Specifications:** 1. Shape: Round wire 2. Material of wire: Nichrome-Alloy of nickel and chromium, Ni80 Cr20 with the following dimensions: a) AWG size: 26 b) Diameter: 0.4 mm c) Length : 100 ft 3. Form: Soft, rust-free wire 4. Color: Silvery grey 5. Resistance : 2.57 ohms/foot 6. Annealed soft 7. Perfectly tensioned. Zero elongation, scratches, or other flaws. 8. Comes in a spool 9. Packed in a resealable plastic pouch 10. Comes with a brand		
LOT 6	Triangular File, fine, 6" long, with plastic handle	**Functional Specifications:** Used to cut the glass tubing **Performance Specifications:** Must be able to cut the glass tubing **Design Specifications:** 1. Type of file: Triangular		

		2. Shape: Triangular 3. Material: High carbon steel 4. Kind of file: Fine, smooth 5. Length of file: 6" (150-152.4 mm) long 6. Material of handle: Plastic 7. Packed in a resealable pouch 8. Comes with a brand		
LOT 6	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 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.		
LOT 7	Beaker, 1000 mL.	**Functional Specifications:** Used to serve as container for mixing and for heating liquids. **Performance Specifications:** Must be able to serve as container for mixing and for heating liquids. **Design Specifications:** 1.Griffin type, borosilicate, transparent, bubble-free glass 2. Shape: a cylindrical container with flat bottom 3.Thickness range: 1.5 mm to 2.0 mm 4. Permanent white graduations, with white enamel marking spot 5. Features an easy-pour spout 6. Capacity: 1000 mL; ± 10% enameled onto the glass 7. Single graduated metric scale 8. Graduation starts at 200 mL in 100 mL increments 9. Height range: 140 mm to 160 mm 10. Outside diameter: 100 mm to 110 mm 11. There must be no cracks and sharp parts 12. Safely packed in a compartmentalized box		
LOT 7	Dish, Petri	**Functional Specifications:** Used to secure the specimen under study. **Performance Specifications:** Must be able to secure the specimen under study. **Design Specifications:** 1. Reusable, borosilicate, circular glass with beaded edge; 2. Bubble-free, plain surface 3. Outside Diameter of Cover: 100 mm±2 mm; 4. Outside Diameter of Dish: 92 mm ± 2 mm; 5. Overall height with cover (as assembled): 20 mm ± 2 mm 6. Glass thickness range: 2 mm to 2.2 mm 7. There must be no cracks and sharp edges 8. Safely packed in a compartmentalized box		

LOT 7	Tong, Beaker	**Functional Specifications:** Used to hold heated beakers. **Performance Specifications:** Must be able to secure hot beakers. **Design Specifications:** 1. Body Shape: Scissor-like tool with plastic-coated jaws 2. Made of 1/4 inch (6.35 mm) smooth finish nickel-plated steel 3. With flat riveted joint 4. Total length (min.) : 254 mm 5. Holds beakers from 50mL to 1000 mL 6. Safely packed in a box		
LOT 7	Beaker, borosilicate, 100 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 150°C for normal, standard use service **Performance Specifications:** Must be able to contain/hold /prepare solids and liquids during chemical reaction up to 100 mL capacity and heats them over a Bunsen burner's flame up to more than 150°C for normal, standard use service **Design Specifications:** 1. Type : Griffin, low form 2. Shape : Cylindrical container with straight sides, a flat bottom, and with a small spout (or "beak") to aid in pouring 3. Material: Borosilicate, clear and transparent bubble-free glass with the following dimensions: a) Outside diameter : 50 mm-52 mm b) Height: 70 mm-72 mm c) Thickness : 1.5 mm-2.0 mm 4. Capacity : 100 mL ± 5% etched onto the glass;" 5. Graduation starts at : 20 mL in 10 mL increments. 6. Graduation range : 20 mL to 80 mL 7. With permanent white enamel graduations of approximate volumes, inscriptions 8. With large white marking spot 9. Features an easy-pour spout 10. With single graduated metric scale 11. Can withstand heating up to 200-230°C for normal, standard use service 12. Wrapped in paper, enclosed in bubble wrap, and packed in a compartmentalized box 13. Must be free from breakage, cracks , chipped rims and other defects 14. Comes with a brand, with more than 100 years existence in the glass wares industry		
LOT 7	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 150°C for normal, standard use service **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 150°C for normal, standard use service		

		Design Specifications: 1. Type : Griffin,low form 2. Shape: Cylindrical container with straight sides, a flat bottom. and with a small spout (or "beak") to aid pouring 3. Material: Borosilicate, clear and transparent bubble-free glass with the following dimensions: a) Outside Diameter: 68 mm to 70mm b) Height: 90 mm to 92 mm c) Thickness: 1.5 mm to 2.0 mm 4. With permanent white enamel graduations of approximate volumes, inscriptions and markings enmeled onto the glass 5. With large white marking spot 6. Features an easy-pour spout 7. "With double graduated metric scale " 8. Capacity: 250 mL ±5% etched onto the glass;" 9. With marking graduation to fill: starts at 25 mL in 25mL increments 10. With marking graduation to empty: starts at 0 mL in 25 mL increments 11 Graduation interval: 25 mL 12. Graduation range: 25 mL to 200 mL 13. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box 14. Can withstand heating up to 200-230°C for normal, standard use service 15.Must be free from breakage, cracks, chipped rims and other defects 16. Comes with a brand of more than 100 years existence in the glasswares industry		
LOT 7	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 150 °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 150 °C **Design Specifications:** 1. Shape: Cylindrical container with straight sides, a flat bottom with a small spout (or "beak") to aid pouring 2. Material: Borosilicate, clear and transparent bubble-free glass with the following dimensions: a) Outside Diameter: 40 to 42 mm b) Height: 55 to 57 mm c) Thickness: 1.5 to 2.0 mm 3. Capacity: 50 mL; ± 5% enamelled onto the glass 4. Graduation starts: at 10 mL in 10 mL increments 5. Graduation interval: 10 mL 6. Graduation range: 10-40 mL 7. With permanent white enamel graduations of approximate volumes, inscriptions enamelled onto the glass 6. With large white marking spot 7. Features an easy-pour spout 8. With single graduated metric scale 9. Can withstand heating up to 150°C for normal, standard use service 10. Wrapped in paper, enclosed in bubble wrap and packed individually in compartmentalized box		

		11. Must be free from breakage, cracks, chipped rims and other defects 12. Comes with a brand with more than 100 years existence in the glasswares industry		
LOT 7	Beaker, borosilicate, 500 mL	**Functional Specifications:** a)Used to contain/hold/prepare solids and liquids during chemical reaction and to heat them over a Bunsen burner's flame up to 150°C for normal, standard use service and b)to serve as a water bath when heating flammable chemicals instead of an open flame to prevent ignition. **Performance Specifications:** a) Must be able to contain/hold /prepare solids and liquids during chemical reaction and heats them over a Bunsen burner's flame up to 150°C for normal, standard use service and to serve as a water bath b) to serve as a water bath when heating flammable chemicals instead of an open flame to prevent ignition. **Design Specifications:** 1. Type: Berzellius, tall form 2. Shape: Cylindrical container with straight sides, a flat bottom, with a small spout (or "beak") to aid pouring 3. Material : Borosilicate, clear, bubble free glass , Berzellius. tall form with the following dimensions: a) Outside Diameter Range :75 mm- 80 mm b) Height range: 136 mm -140 mm c) Thickness :1.5 mm to 2.0 mm 4. Capacity :500 mL ; ± 5% etched/embossed onto the glass 5. With permanent white enamel graduations of approximate volumes, inscriptions and 6. With large white marking spot 7. With easy pour spout 8. Double graduated metric scale 9. Marked to fill: Graduation starts at 50 mL in 50 mL increments 10. Marked to empty: Graduation starts at 0 mL in 50 mL increments 11. Can withstand heating up to 200-230°C for normal, standard use service 12. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box 13. Must be free from breakage, cracks , chipped rims and other defects 14 Comes with a brand, with more than 100 years existence in the glass wares industry		
LOT 7	Burette, 10 mL capacity (acid)	**Functional Specifications:** Used to hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base in acid-base titration to determine concentration of solutions **Performance Specifications:** Must hold/contain the acid up to 10 mL capacity as a titrant to be delivered/ dispensed to titrate the base (with color change from pink to colorless when end point is reached) in acid-base titration to determine concentration of solutions		

		Design Specifications: 1. Type: Class A 2. Shape : Long, graduated glass tube, with a stopcock at its lower end and a tapered capillary tube at the stopcock's outlet. 3. Material : Clear, transparent bubble-free high quality 3.3 borosilicate glass with the following dimensions: a) Inner diameter : 8 mm b) Outer diameter : 11 mm c) Scale length: 300-457 mm d) Total length : 620 -820 mm e) Tolerance: ± 0.02-0.03 mL 4. Capacity: 10 mL 5. Has permanent markings, fine sharp lines and easy-to-read numbers 5. Fitted with grease-free interchangeable with 1.5 mm bore 6.With Certifications/Compliance : High accuracy as per DIN ISO 385 ASTM-E287 standard 7. Marked with an individual serial number 8. With Certificate of Traceability to NIST standards 9. Supplied with a Certificate of Graduation Accuracy 10. Material of stopcock:PTFE key 11. With white graduation lines marked every 1 mL 12 Subdivisions: 0.05 mL 13. With white colored-scale for easy reading 14. Placed in bubble wrap, enclosed in a polystyrene and packed in a sturdy box 15. Must be free from breakage, cracks, chipped rims, sharp edges and other defects 16. Comes with a brand with more than 100 years existence in the glass wares industry		
LOT 7	Burette, 10 mL capacity (base)	**Functional Specifications:** Used to hold/contain the base as a titrant to be delivered/ dispensed to tirate an acid up to 10 mL capacity in acid-base titration to determine concentration of solutions **Performance Specifications:** Must hold/contain the base as a titrant to be delivered/ dispensed to titrate an acid up to 10 mL capacity (with color change from colorless to very faint pink when end point is reached) in acid-base titration to determine concentration of solutions **Design Specifications:** 1. Type: Class B 2. Shape : Long, graduated glass tube, with a stopcock at its lower end and a tapered capillary tube at the stopcock's outlet. 3. Material : Clear, transparent bubble-free borosilicate glass with the following dimensions: a) Diameter : 0.5 inches (min) b) Length: 17 inches (min) c) Tolerance : ± 0.02 mL 4. Capacity: 10 mL 5. Graduations: 0.05 mL 6. With screw-type PTFE Rotaflow stopcock 7. Calibrated to deliver "TD" 8. Accuracy as per class B complies with BS 846		

		9. Serially Numbered. 10. Leak proof stopcock 11. Machine Jet for flow control 12. The graduation line is sharp and permanent. 13. With large white/blue block letters make the inscription easy to read. 14. With blue/white colored-scale for easy readin 15.With Certifications/Compliance : High accuracy as per DIN ISO 385 and ASTM-E287 standard 16. Supplied with a Certificate of Graduation Accuracy 17 With Certificate of Traceability to NIST standards 18.Paced in bubble wrap, enclosed in polystyrene and packed in a sturdy box 18. Must be free from breakage, cracks, chipped rims and sharp edges and other defects 19. With User's ManualAssembly Guides in English 20. With Activity ShHeets/Teacher's Manual in English 21. Comes with a brand with more than 100 years existence in the glass wares industry		
LOT 7	Burner, Alcohol, glass, 150 ml. Capacity	**Functional Specifications:** Used to produce hot, consistent open flame for slow/gentle heating of glasswares and substances **Performance Specifications:** Must be able to produce hot, consistent open flame a)for slow/gentle heating of glasswares and substances b)can withstand prolonged heating without breaking c) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test d) bend a glass tubing e) heat,to sterilize, to accelerate, and to trigger chemical reactions, f) for combustion purposes and techniques **Design Specifications:** 1. Shape : A globe-shaped body and flat base (bottom) with threaded mouth 2. Materia l : Sturdy, heavy walled, clear, transparent, bubble-free glasswith the following dimensions a) Outside Diameter : 80 mm to 85 mm b) Total height: 100 mm to105 mm 3. Capacity : 150 mL 4. With wick holder permanently attached to a threaded base a) Material of wick holder and cover/caps : Nickel- plated brass b) Type of wick holder : Threaded 5. With one (1) pc cotton fiber/strand braided wick perfectly fitted to the wicktube a) Material of wick : Cotton fiber/strand b) Type of wick: Braided c) Length: 7 inches (178 mm) min d) Diameter: 3/16 inches (5-6 mm)		

		6. With snuff/snap-on cover/cap 7. With ten (10) pc replacement braided cotton fiber/strand wicks 8. Wrapped in paper , enclosed in bubble wrap and packed in compartmentalized box 9. Must be free from breakage, cracks , chipped rims and other defects 10. Comes with a brand		
LOT 7	Burner, Bunsen	**Functional Specifications:** Used to : a) produce single, hot, continuous, consistent open blue flame b) for slow/gentle heating of glasswares and substances, c) rapidly heat high-boiling liquids with low flammability like water d) heat, sterilize/accelerate/ trigger chemical reactions, e) for combustion purposes **Performance Specifications:** Must be able to produce single, hot, continuous, consistent open blue flame to: a) visually determine the hottest part of the Bunsen flame b) visually determine the identity of an unknown metal or metalloid ion based on the characteristic color the chemical/salt emits on the Bunsen flame to investigate reactions of ions and apply these in qualitative analysis through an activity, on Flame Test c) bend a glass tubing d) used as a heating medium to demonstrate distillation, as one of the simple separation techniques e) slow/gentle heating of glasswares and substances f) rapidly heat high-boiling liquids with low flammability like water g) heat,to sterilize, to accelerate, and to trigger chemical reactions, h) for combustion purposes and techniques **Design Specifications:** 1.Type: Gas type with accessories 2.Shape of burner tube: Long, hollow tube with stabilizer top and serrated inlet tube 3. Material for burner tube : Aluminum with the folowing dimensions: a) Diameter of burner tube:11- 12 mm diameter b) Over-all height : 152-155 mm 4. With flame stabilizer 5.With threaded gas needle valve (located opposite to serrated inlet tube) 6. Material of base: Nickel-plated zinc-alloy 7. Individually packed in a sturdy box 8. With User's Manual and Operations Guide in English 9. Comes with Activity Sheets with Teacher's Mnual in English 10. For numbers #8 to 9; technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled Comes with a brand		
LOT 7	Cork borer	**Functional Specifications:** Used to bore or to cut a round hole of six different diameters in a cork/rubber stopper with a steel ramrod/eject rod pushing the removed cork out of the borer **Performance Specifications:** Must be able to bore or to cut a round hole of six different diameters in a cork or rubber stopper and remove cork out of the borer by pushing it with a steel ramrod/eject rod **Design Specifications:** 1. Shape of cork borer : Long, hollow round rod/tube with sharpened ends 2. Material of tube/rod : Nickel-plated steel borer 3. A set of six (6) different diameter sizes:(4 mm, 4.5 mm, 6 mm, 8 mm, 9.5 mm, 11 mm) 4. Comes with a handles whch are individually and permanently numbered (1-6) for easy identificationhandle a) Shape of handle: T-shaped b) Material of handle : Hard plastic c) Finish: Smooth d)Color of handle: Red 5. Includes a ramrod/eject rod pushing the removed cork out of the borer Material of ramrod/eject rod: Steel 6. Packaging: Resealable plastic pouch 7.Comes with a brand		
LOT 7	Cork Stopper # 5 (for Ø 16mm test tube)	**Functional Specifications:** Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware to prevent leaks, hazards and contamination to yield positive results during chemical reactions **Performance Specifications:** Must be able to seal the openings of 16 x 150 mm test tubesand other laboratory glassware and to prevent leaks, hazards and contaminationto yield positive results during chemical reactions **Design Specifications:** 1. Type: Extra Select Grade with fewer lenticels (crevices) bag 2. Shape: Cylindrical with a tapered bottom end 3. Material of cork : Bark of Cork oak tree (elastic and near impermeable with the		

		following dimensions: a) Height: 22 mm b) Top Ø: 17 mm c) Bottom Ø: 15 mm d) Hole Ø: 5 mm 4. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 5. Packed in resealable plastic 6. Comes with a brand		
LOT 7	Crucible with lid/cover	**Functional Specifications:** Used as a container to heat metals or other substances may be melted or subjected to very high temperatures **Performance Specifications:** Must be able to contain elements, compounds, metals, organic compounds or other substances to be melted or subjected to very high temperatures to determine mass relationship in a chemical reaction **Design Specifications:** 1. Type: High/tall form 2. Shape: Cylindrical 3. Capacity: 30 mL 4. Material: Porcelain, with the following dimensions: a) Height: 43 mm (min) b) Base diameter : 24 mm (min) c) Top diameter: 33 mm(min) 5. With uniform thickness and density 6. Glazed inside and out, except outside bottom and rim. 7. With crucible cover completely glazed except for rim. 8. Withstands temperatures up to 565-800 degrees Centigrade. 9. Must be free from breakage, cracks, chipped and sharp edges/rims 10. Comes with a brand		
LOT 7	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. Shape: Deep form, broad, and wider at the top than bottom and with round bottom with pouring lip/spout 2. Material : Porcelain, with the following dimensions: a) Diameter: 80-82 mm b) Height/depth : 30-34 mm high 3.Capacity: 75 mL 4. With pouring lip/spout 5. Can withstand temperatures up to 1150°C 6. Uniformly glazed inside (except for rim) and partly uniformly glazed outside except bottom surface. 7. Must be free from breakage, cracks,chipped rims and other defects 8.Wrapped in paper, and packed ina sturdy box 9. Comes with a brand		

LOT 7	Distillation set-up: Condenser, Liebig-type	**Functional Specifications:** Used to condense the water vapor into its liquid state producing a distillate **Performance Specifications:** Must be able to condense the water vapor into its liquid state producing a distillate, used in distillation, as one of the simple separation techniques **Design Specifications:** 1. Shape : Two concentric straight glass tubes, the inner one being longer and protruding at both extremities, surrounded by a water jacket with sealed inner tube and outer tube 2. Material : Transparent, bubble-free 3.3 borosilicate glass with the following dimensions: a) Tubulation OD : 10 mm (min) b)Jacket OD : 41 mm (min) c)Jacket length: 300 mm (min) d) Over-all Length : 450 mm (min) 3.Color: Clear4. With sealed inner tube 5. With Standard Taper Outer and Inner Joints: 24/40 6.. With a drip tip at the bottom 7. Accessories: a) One (1) pc rubber stopper that will fit upper (inlet) tube i) Number of rubber stopper : #3 ii) Number of hole: One (1) hole iii)Diameter of hole: 5mm iv) Hardness: 40±5 Duro b) Rubber tube Material of rubber Hose : Non-tacky, Latex rubber tube with the following dimensions: ii) Inner diameter : Ø 8 mm iii) Outer diameter : Ø 12 mm iv) Length : 3 m long v) Color of rubber tube : Amber 8. The glass is wrapped in bubble wrap, enclosed in a polystyrene and packed in a sturdy box while the rubber stopper /tube is placed in a resealble plastic bag 9. Must be free from breakage, cracks and chipped parts 10. Must have User's Manual in Englisn on the installation, use and care, proper storage with repair and maintenance 11. With Activity Sheets/Teacher's Manual in English 12. For numbers #10 to 11; technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 13. Must have a brand for the glass with over 100 years in the glasswares industry		
LOT 7	Distillation set-up: Distilling Flask, borosilicate, 250mL	**Functional Specifications:** **Performance Specifications:** Must be used to hold/ contain the liquid to be distilled in distillation, as one of the simple separation technique **Design Specifications:** 1. Shape : Long neck, a side arm that facilitates condensation, and a round bottom for uniform heating . 2. Material : Clear, transparent, bubble-free borosilicate glasswith the following dimensions: a) Flask Height: 240 mm (min.) b) Side Arm Length : 130 mm (min.) c) Side arm : 76 to 78 mm below the top of the neck. 3. Capacity: 250 mL 4. Supplied with an accessory a) rubber stopper that fits the mouth of the flask i) Hardness: 40±5 Duro ii) Number of hole: One (1) iii) Diameter of hole : 5 mm 5. Must be free from breakage, cracks and chipped parts 6. Wrapped in bubble wrap, enclosed in a polystyrene and packed in a sturdy box 7. Must be free from cracks and chipped parts 8. Must have a brand with more than 100 years existence in the glasswares industry		
LOT 7	Double burettte clamp	**Functional Specifications:** Used to hold and secure two burettes on a stand, so that each burette is fixed and more convenient for the experiment. **Performance Specifications:** Must be used to hold and secure two burettes simultaneously on a stand, so that the burettes are fixed and more convenient to perform acid-base titration experiment to determine concentration of solutions. **Design Specifications:** 1. Shape : Double Y-shaped or butterfly-shaped items which have spring action clamps. 2. Material of body: Die cast aluminum with chemical resistant white enamel finish,with the following dimensions: Length range : 245-254 mm Width range : 120-127 mm Mounting hole diameter (Φ): 15 mm 3. Color of body: White 4. Material of sleeves/jaws/grips : Vinyl or rubber for excellent grip 5. Color of sleeves/jaws/grips: Blue/red/black Distance between sleeves/jaws/grips : 85 mm (min) Scope of application: Φ15- 36 mm 6. With 4 spring action clamps, 2 on each opening 7. With two separate adjusting knobs or squeeze clamping mechanism		

		8. Color of adjusting knobs : White 9. Mounts directly to standard support rod with built in hook connector. 10. The dual metal burette clamp supports burettes from 10 mL (10 cc) to 100 mL (100 cc). 11. They can be attached to support stand rods from 5/16", 1/2" up to~16 mm to 17mm diameter 12. Must be free from sharp edges 13 Comes with a brand		
LOT 7	Electrolysis Apparatus, student-type (Brownlee)	**Functional Specifications:** Used to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water. **Performance Specifications:** Must be able to demonstrate and describe the decomposition reactions at the electrodes during the electrolysis of water, producing 1:2 ratio of hydrogen & oxygen gases respectively, by passing DC current through water. Positive results occur: a) When an ember in a stick is introduced onto the test tube with hydrogen gas, it pops. b) If the gas is oxygen, the ember must glow more **Design Specifications:** 1. Shape of Jar : Cylindrical container with a flat bottom, with a wide mouth and a small turned-out lip for pouring 2. Material of jar: Clear, transparent, and bubble free borosilicate glass with the following dimensions: a) Diameter :4.5 inches (114-115 mm) (min) b) Height :5.0 inches (127-128 mm) (min) 3. Capacity: 1000 mL 4. Comes with two (2) electrodes Material of two electrodes: Platinum 5. Comes with an acid-proof insulating support to hold the two binding posts (one red, one black) 6. Holder of two test tubes : Two (2) spring clips 7. With two (2) test tubes a) rimless b) graduated from its bottom to top. Zero starts at bottom c) Material of test tubes : Borosilicate , clear, transpar ent and bubble-free glass with the following dimensions: d)Diameter: 18 mm diameter e) Length: 150 mm long f) Capacity : 25 mL g) With heavy uniform wall thickness, excellent heat resistance, round bottom glass h) With permanent graduation of approx. volume and inscriptions in high contrast white enamel. 8. Comes with power source: 220 V -240 V AC input)/ (0-12 V) DC output, and with switch selector 9. Comes with 9 V battery with one (1) battery snap 10.Comes with two (2) connecting wires (1 red, 1 black) a) Length: 12 in		

		b) Type of wire : Stranded c) Gauge no: 20 11. Comes with with alligator clip soldered on one end of the wires with banana plugs soldered on the other end of each wire (1 red, 1 black) 12. Comes with two (2) replacement test tubes a) rimless b) graduated from its bottom to top. Zero starts at bottom c) Material of test tubes : Borosilicate , clear, transpar ent and bubble-free-glass with the following dimensions: d)Diameter: 18 mm diameter e) Length : mm long f) Capacity : 25 mL g) With heavy uniform wall thickness, excellent heat resistance, round bottom glass h) With permanent graduation of approx. volume and inscriptions in high contrast white enamel. 13. Comes with two (2) solid rubber stoppers to fit perfectly the two (2) (18 x 150 mL) test tubes 14. With a well written Operations Manual and Assembly Guide in English 15.With sample Activity Sheets/Teacher's Manual in English 16. With Detailed instructions provided. 17. For numbers 14-17, the following technical specifications from a-e must be followed: a) For List of materials, In Table form b) For User's Manual, Teacher's Guide, Student Worksheets, 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 17. With training on the installation, use, care, proper storage with repair and maintenance 18. Placed in bubble wrap, enclosed in polystyrene and comes complete with a padded storage box to help prevent glass breakage. 19. Must be free from breakage, cracks, sharp rims and other defects 20. Comes with a brand		
LOT 7	Flask, Erlenmeyer, borosilicate, narrow-mouth, 250 mL	**Functional Specifications:** Used to : a) contain/hold a small chemical reaction, b) mix solids and liquids, c)heat substances over a Bunsen/alcohol		

		burner's flame up to over 150 °C or d)collect them in a titration/distillation experiment **Performance Specifications:** Must be able to: a) contain/hold a small chemical reaction , b) mixes solids and liquids during chemical reaction, c) heats substances up to 150°C over a Bunsen burner's flame up to 250 mL, or d) serves as a reaction vessel in a titration experiment, and to collect distillate during distillation **Design Specifications:** 1. Shape : A conical body, a cylindrical short neck , narrow mouth, with sloping sides, and with a flat bottom 2. Material : Clear, and transparent bubble-free, borosilicate,glass with the following dimensions: a) Outside diameter range :80 m -82 mm b) Height range: 130-132 mm c) Thickness range :1.5 to 2.0 mm d) Neck inside diameter range : 28 to 30 mm e) Tolerance : ±6% and other inscriptions enamelled onto the glass 3. Capacity: 250 mL capacity 4. Graduation range: 50 mL-200 mL 5. Graduation interval: 25 mL 6. Graduation starts at: 50 mL in 25 mL increments 7. With uniform wall thickness 8. With heavy duty beaded rim 9. With permanent durable white enamel graduations with large, white enamel marking spot 10. Can withstand heating up to150°C for normal, standard use service 11. Wrapped in paper and individually packed in a compartmentalized box 12. Must be free from breakage, cracks,chipped rims and other defects 13. Comes with a brand with more than 1oo years of existence in the glass wares industry		
LOT 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: Fluted, short stem 2. Shape : A wide, inverted conical top with narrow short circular tube at the bottom 3. Material: Borosilicate, clear, transparent, bubble-free glass with the following dimensions: a) Top diameter : 75 mm etched on the glass b) Stem outer diameter :8 mm c) Stem length :75 mm d) Total Height: 139 mm 4. With heavy beaded rim and heavy		

		uniform wall for strength. 5. With slanted tip, filter angle (angled 60º°)and depressed inside fluting help reduce filtering time 6. Wrapped in paper, enclosed in bubble wrap, and individually packed in a sturdy box 7. Must be free from breakage, cracks, chipped rims and other defects 8. Comes with a brand with more than 1oo years of existence in the glass wares industry		
LOT 7	Glass Tubing, Ø 6 mm x Ø 4 mm x 1500 mm long	**Functional Specifications:** Used to contain/hold/mix liquids or gases during chemical reactions and to connect other pieces of equipment/glasswares to a gas or liquid assembly **Performance Specifications:** Must be able to: a) be bent to onnect other pieces of equipment/glasswares to a gas or liquid assembly like in the activity " Flowing Up" and connect Florence flask to the Liebig condenser as a substitute for distilling flask for Distillation set up b)contain/hold/mix liquids or gases during chemical reactions, to relate the rate of gas effusion with molar mass and demonstrate Graham's law of effusion in an experiment where a white ring.mass is observed **Design Specifications:** 1. Shape: Long slender hollow glass 2. Material : Soda lime, clear, transparent, bubble-free glass tubingwith the following dimensions: a) Outside diameter : 6 mm b) Tolerance: ±0.15 c) Wall thickness:0.1 mm d) Tolerance: ±0.04 e) Length: 1498-1500 mm 3. With fire polished ends 4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box 5. Must be free from breakage, cracks, chipped edges and other defects 6. Comes with a brand		
LOT 7	Manometer, Open U-tube	**Functional Specifications:** Used to indicate the difference in the heights of the manometric liquid to measure pressure **Performance Specifications:** Must be able to indicate the difference in the heights of the manometric liquid to measure pressure by getting the pressure difference **Design Specifications:** 1. Type: Differential pressure manometer 2. Shape : U-shaped glass tube partially filled with liquid, with no moving parts and requires no calibration 3. Material : Glass 4. With a 50 cm arm with funnel top on one arm and 4.5 cm bent (90°) with 15 mm rifted tip on another arm for easy connection 5. U-tube is mounted on a board, fixed on		

		a wooden stand for vertical mounting a) Material of stand : Wooden b) Dimensions of back plate i) Length : 540 mm ii) Width :90mm 6. A millimeter scale is fitted between the arms of the tube. a) Scale having graduation range: 0-50 cm b) Graduation increment : 1 mm, with 0 at the bottom. 7. Accessories: a) With latex tubing, glass wall 1 mm thickness, 8 mm inner diameter. i) Material of rubber tubing: Non-toxic non-tacky latex-rubber tubing for the laboratory activity. ii)Length of rubber tube: 3 meters 8. Stand with glass tube placed in bubble wrap, enclosed in polystyrene and packed individually a sturdy box 9. Accessories enclosed in resealable plastic bag 10. With User's Manual in English 11. With Assembly Guides and Activity Sheets 12 For numbers #9 and 10; they must be: a) In Table form for List of materials, in A4 size, glossy paper,laminated b) In sentences format for instruction sheets/assembly guides i) With sentences grammatically correct and ii) With correct spelling and terminologies, punctuations and others c)Printed in original copy, not photocopied d) In colored 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 13. Comes with a brand		
LOT 7	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 : 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 mm ± 1 mm b) Depth : 65 mm		

		c) Flat bottom : 87 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 awith bulbous bottom with the following dimensions: a) Length range: 133-135 mm and b) Diameter range : 28 - 30 mm dia 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 parts and other defects 11. Comes with a brand		
LOT 7	Osmosis Apparatus	**Functional Specifications:** Used to to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube **Performance Specifications:** Must be able to show that water passes through a semi-permeable membrane causing a rise in the level of water in the thistle tube, to describe/demonstrate the effect of concentration on one of the colligative properties (osmotic pressure) of solutions **Design Specifications:** 1. Shape of thistle tube : Long shaft of tube, with funnel-like section at the top and bottom 2. With one (1) pc battery jar 3. With one (1 pc) double thistle tube 4. Material of thistle tube and jar : Clear, transparent bubble-free borosilicate glass with the following dimension: Length of double thistle tube : 16" (410 mm) (min) 5. With an aluminum thistle tube support stand 7. Comes with ten (10) pc semi-permeable membrane 8. With one (1) pc O ring 9. Placed individually in a bubble wrap, enclosed in a polystyrene and packed in a sturdy box 10. With Instruction and Activity Sheets 11. With a well written User's Manual (Assembly guides) and Activity Sheets in American English, with techncail specfications details as follows: a) original print b) A4 size copy paper (80 gsm) c) With colored pictures, drawings/illustrations d) Margin of 1/2 inch on all sides: with 2 point width border line e) Lay out orientation : Portrait f) Title: OSMOSIS APPARATUS shall be placed on the top center i) Fontstyle: Times New Roman ii) Font size: 36 iii) UPPERCASE iv) BOLD g) Labels i) Font style : Times New Roman ii)Font size: 14.		

		iii) First letter of the label is capitalized iv) Line with arrowhead of 1.25 width shall point to the specific ball being labeled h) Sentences must be grammatically correct and with correct spelling, pucntuations and terminologies d) with colored illustrations and drawings e) laminated in thick plastic 11. Must be free from breakage, cracks, and chipped parts 12. Comes with a brand with more than 100 years existence in the glass wares industry		
LOT 7	Reagent Bottle, narrow-mouth, amber, borosilicate, 250 mL	**Functional Specifications:** Used to contain/store and to provide UV protection of prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents **Performance Specifications:** Must be able to contains/store and to provide UV protection for the prepared light sensitive solutions/substances to prevent change/alteration in the composition of their contents. **Design Specifications:** 1. Shape: Cylindrical narrow-mouth bottle 2. Material : Soda lime, bubble-free amber glass with the following dimensions: a) Bottle diameter range : 67 to 72 mm b) Neck I.D. range: 24 to 28 mm c) Over-all height range : 131 to 150 mm 3. Capacity: 250 mL 4. Socket size: 24/29 5. With octagonal plastic stopper 6. With permanent large with enamel .marking spot 7.Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box 8. Must be free from breakage, cracks , chipped rim and other defects 9. Comes with a brand etched onto the glass		
LOT 7	Reagent Bottle, wide-mouth, transparent, borosilicate, 250 mL	**Functional Specifications:** Used to hold/ contain/store prepared solutions/ substances **Performance Specifications:** Must be able to hold/contain/store prepared solutions/substances **Design Specifications:** 1. Shape: Cylindrical wide-mouth bottle 2. Material: Borosilicate, clear, transparent and bubble-free glass with the following dimensions: a) Bottle diameter : 69 mm to 73 mm b) Mouth diameter: 34 mm to 44 mm c) Height range:: 132 mm to 142 mm 3. Capacity: 250 mL 4. Features no-drip pour lip 5. With ground-in glass stopper 6. With air tight seal 7. Wrapped in paper, enclosed in bubble wrap and packed individually in a compartmentalized box 8.. Must be free from breakage, cracks , chipped rims and other defects 9. Comes with a brand, with more than 100 years existence in the glass wares industry		

LOT 7	Rubber Stopper # 0 (for Ø 16mm test tube)	**Functional Specifications:** Used to seal the openings of 16 mm diameter test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination **Performance Specifications:** Must be able to seal the openings of 16 mm diameter 150 test tubes and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance.to prevent leaks, hazards and contamination **Design Specifications:** 1. Shape: Cylindrical with a tapered bottom end 2. Material : Premium grade SBR black rubber compound with the following dimensions: a) Height: 25 mm (min) b) Top Ø: 17 mm (min) c) Bottom Ø : 13 mm (min) d) Hole Ø: 5 mm (min) 3. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 4. Hardness : 40± 5 Duro 5. Packed in resealable plastic bag 6. Comes with a brand		
LOT 7	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 1 hole	**Functional Specifications:** Used to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with one 1) hole opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction .to prevent leaks, hazards and contamination. **Performance Specifications:** Must be able to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance .with one (1) hole opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination. **Design Specifications:** 1. Shape: Cylindrical with a tapered bottom end 2. Material : Premium grade SBR black rubber compound with the following dimensions: a) Height: 25 mm b) Top Ø: 32 mm c)Bottom Ø : 26 mm d) Hole Ø: 5 mm 3. Number of holes :With one (1) hole 4. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 5. Hardness : 40 ± 5 Duro 6. Packed in resealable plastic bag 7. Comes with a brand		
LOT 7	Rubber Stopper # 6 for Erlenmeyer Flask (narrow-mouth) 250 mL , 2 holes	**Functional Specifications:** Used to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with two (2) holes opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination.		

		Performance Specifications: Must be able to seal the openings of narrow mouth 250 mL Erlenmeyer flasks and other laboratory glassware that require a tighter seal or a greater degree of chemical resistance with two (2) holes opening for insertion of a thermometer, glass tubing or stirrer for use during chemical reaction to prevent leaks, hazards and contamination. **Design Specifications:** 1. Shape: Cylindrical with a tapered bottom end 2. Material : Premium grade SBR black rubber compound with the following dimensions: a) Height: 25 mm b) Top Ø: 32 mm c) Bottom Ø : 26 mm d) Hole Ø: 5 mm 3. Number of holes : Two (2) holes 4. Dimension tolerance on height, top and bottom diameter : ± 0.5 mm 5. Hardness : 40 ± 5 Duro 6. Packed in resealable plastic bag 7. Comes with a brand		
LOT 7	Spoon-spatula, 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. Shape: A broad, flat, flexible blade (spatula) on one end and a spoon on the other end. 2. Material : Uniformly glazed smooth finish porcelain with the following dimension: Over all Length : 140 mm (min) 3. Color: White 4. Must be free from breakage, cracks and chipped edges and other defects 5. Wrapped in paper, enclosed in bubble wrap and packed in a sturdy box 6. Comes with a brand		
LOT 7	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. Shape: Long, slender cylindrical solid glass, with the same thickness and slightly longer than a drinking straw and with rounded 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 box 5. Must be free from breakage, cracks and chipped unpolished ends 6. Comes with a brand with more than 1oo years of existence in the glass wares industry		

LOT 7	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. Shape of bristles: Radial tufted tip bristles and brush head to make complete contact with walls, corners and bottom. 2. Material of bristles: Medium stiff nylon with the following dimensions: a) Diameter: 17-19 mm b) Length: 96-98 mm c) Over-all length: 220-229 mm 3. Material of handle: Galvanized steel wire 4. Type of wire handle : Common loop twisted wire 5. With circular loop.for hanging 6. Packed in a reseable plastic bag 7. Must be free from sharp metal parts 8. Comes with a brand		
LOT 7	Test tube, Ø 16mm x 150mm 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 **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. Shape : Fingerlike 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, glass, with rim with the following dimensions: a) Diameter: 16 mm diameter b) Thickness :1.3 -1.4 mm c) Length: 150 mm long 3. Capacity : 20 mL 4. With heavy uniform wall thickness, excellent heat resistance 5. Test tubes must be reusable (not disposable) 6. With large, white enamel marking spot 7. With permanent graduation of approx. volume and inscriptions in high contrast white enamel. 8. Can withstand heating up to 150°C for normal, standard use service 9. Comes with a certification from the manufacturer that the test tube is reusable not disposable 10. Wrapped individually in tissue paper, enclosed in bubble wrap and packed in comprtmentalized box 11. Must be free from breakage, cracks, chipped rims and other defects 12. Comes with a brand with more than 1oo years of existence in the glass wares industry		
LOT 7	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. Shape : Scissor-like tongs, with two 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: Smooth finish stainless steel with the following dimensions: a) Overall Length : 9 inches/229 mm b) Reach: 7 inches 5. With riveted joints 6. With serrated tips. 7. Enclosed in resealable bag and packed in a sturdy box 8. Must be free from sharp edges 9. Comes with a brand		
LOT 7	Vial, screw-neck, 25 ml. (with screw-type plastic cap)	**Functional Specifications:** Used to hold/contain/store/mix small quantities of samples/ solutions/substances up to 25 mL **Performance Specifications:** Must be able to hold/contain/store/mix small quantities of samples up to 25 mL **Design Specifications:** 1. Type: Threaded Screw cap 2. Shape : Bottle-like shape with a threaded neck,polypropylene closure and with a flat bottom 3. Material: Borosilicate clear, transparent, and bubble-free glass with the following dimensions: a) Outside Diameter : 25 mm to 30 mm b) Length: 60 mm to 80 mm 4. With screw- type plastic cap 5. Shape of neck : Cylindrical, round 6. Neck finish: Continuous thread 7. Cap Color: Black/Pink 8. Cap Attached : No 9. Cap Material: Polypropylene (plastic) 10. Closure style: Solid top, screw thread cap 11. Neck size: 24-400 12. Cap liner: Foam lined 13. Capacity: 25 mL 14. Packed individually in a compartmentalized box 15. Must be free from breakage, cracks , chipped rims and other defects 16. Comes with a brand		
LOT 7	Vial, screw-neck, 50 mL. (with screw-type plastic cap)	**Functional Specifications:** Used to hold/contain/store/mix small quantities of samples/ solutions/ substances up to 50 mL **Performance Specifications:** Must be able to hold/contain/store/mix samples/solutions/substances up to 50 mL **Design Specifications:** 1. Type: Wide mouth 2. Shape : Bottle-like shape with a		

		threaded neck, screw cap polypropylene closure and with a flat bottom 3. Material : Borosilicate,clear, transparent, and bubble-free glass with the following dimensions: a) Outside Diameter : 25 mm to 30 mm b) Length: 100 mm to 108 mm 4. Capacity: 50 mLWith screw- type plastic cap 5. Shape of neck : Cylindrical, round 6. Neck finish: Continuous thread 7. Cap Color: Black/White 8. Cap Attached: No 9. Cap Material : Polypropylene (plastic) 10. Closure style : Solid top, screw thread cap 11. Neck size: 24-400 12. Cap liner: Foam lined 13. Packed individually in a compartmentalized box 14. Must be free from breakage, cracks , chipped rims and other defects 15. Comes with a brand		
LOT 7	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 and bubble-free glass with the following dimensions: a) Diameter: 90 mm ± 1 mm b) Thickness range : 1.5 mm to 2 mm 3. Fire-polished rims/edge. 4. Individually wrapped in used newspaper, enclosed in a bubble wrap, and packed in a sturdy box 5. Must be free from breakage, cracks, chipped edges and other defects 6. Comes with a brand		
LOT 8	Algebra Tiles, set of 30	**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:** Design: 1. Algebra Tiles should come in a set of 30 that includes the following: a. 6 pcs of Square Tile (Squared Variable Tile) about 89mm x 89mm x 1mm in size and color blue b. 16 pcs of Long Tile (Variable Tile) about 89mm x 21mm x 1mm in size and color green c. 24 pcs of Ones Tile (Constant Tile) about 21mm x 21mm x 1mm 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 good quality plastic and has no sharp edges. 3. Must be stored in a plastic storage box with a capacity to store 1,300 pcs of Algebra Tiles.		
LOT 8	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 hard plastic, smooth surface and edges, and free from toxic materials 2. The set includes 100 units (1 cm x 1 cm x 1 cm), 10 rods (1 cm x 1 cm x 10 cm), 10 flats (1 cm x 10 cm x 10 cm), and 1 cube (10 cm x 10 cm x 10 cm). Note: Each block should have distinct color from each other (e.g.: Unit - Red, Rod - Yellow, Flat - Green, Cube - Blue). 3) Comes in a sturdy plastic container with cover to accommodate all the items.		
LOT 8	Beads, Ø16mm	**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) Bead Material: Plastic, spherical, smooth surface 2) With a hole that passes through the center 3) Bead diameter: 13 mm to 18 mm 4) Assorted color, at least 5 colors consisting of 300-500 pieces 5) Comes in a sturdy plastic transparent storage container with cover 6) The items shall be free from toxic materials. 7) Unbreakable when drop from a height of 1 meter 8) Comes with nylon string of 5 meters long that fit loosely to beads hole		
LOT 8	Blackboard Triangle, 30º x 60º and 45º x 45º	**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: Sturdy plastic, smooth, not flexible and with handle 2. Permanent graduation markings in cm in all sides 3. For 30° x 60°: 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 should be free from toxic materials.		
LOT 8	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: Sturdy plastic 2. Circle Diameter: 196 mm (minimum) - Each half comes in different colors 3. Thickness: 5 mm (minimum) 4. Dissectible into at least 12 sectors 5. Comes with base for mounting the circle and the sectors. 6. Should be free from toxic materials		
LOT 8	Compass, Drawing	**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, stainless steel; 2. Length: 120mm - 150mm; 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. Stainless Steel Surface Finish: Well-polished and smooth; 5. Comes with transparent plastic case or box; and 6. Must be branded.		
LOT 8	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 - gray, 4cm - pink, 5cm - yellow, 6cm - green, 7cm - dark green, 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.		
LOT 8	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. Made of durable plastic 2. 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 3. Dial diameter measures 25 cm (±1cm) 4. The hour number must be printed in Hindu Arabic numeral and with corresponding minute(s) number in the same numeral format. 5. The item shall be free from toxic materials.		
LOT 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 sturdy 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): 230 mm x 230 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. Must be branded.		
LOT 8	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. 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 (approximate) 6) Guiding post approximate Diameter: 6mm 7) Guiding post approximate Height: 20mm 8) Approximate Height of the Base: 25mm 9) Board Thickness: 4mm (approximate) 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) Should be branded. Note: There must be no warping of the board and base. The Geoboard must be flat when laid on a table.		
LOT 8	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 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.		
LOT 8	Ghost Grid Whiteboard, Mobile Magnetic, 72" x 40"	**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; 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: 74.5"W x 23"D x 69"H; 7. Board Dimensions: 72"W x 40"H;		

		8. Base Dimensions: 74.5"W x 23"D; 9. Tray Style: Full length 10. Casters: 4 pieces, 2-inch casters, two with locking brakes; 11. Actual weight: 18.60 kg.; and 12. Must be properly packed using shipping carton.		
LOT 8	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: a. Dimension: 1 cm x 1 cm x 1 cm (minimum) b. Material: Durable, smooth surface and edges, non-toxic plastic, and assorted colors (5 colors with at least a minimum of 100 pieces per color) c. With interlocking feature for connecting the cubes. 2) Plastic transparent storage bucket with cover: a. Material: Durable, non-toxic, transparent plastic. 3) Fitting is push fit which can be assembled or disassembled without extra effort		
LOT 8	Model, Basic 3D Geometrical Collapsible	**Functional Specifications:** Used to demonstrate relational geometric concepts between polygons and polyhedrons; aid derivation of formula (surface area and volume) of polyhedrons. **Performance Specifications:** 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) Collapsible Basic 2D-3D Geometrical Solid Models include: a) Cube: 10cm x 10cm x 10cm b) Cone: Height = 10cm; Base diameter = 10cm c) Cylinder: Height = 10cm; Base diameter = 10cm d) Hexagonal prism: Height = 10cm; Length of sides (Base) = 5.18cm (±0.02cm) e) Hexagonal pyramid: Height = 10cm; Length of sides (Base) = 5.18cm (±0.02cm) f) Pentagonal prism: Height = 10cm; Length of sides (Base) = 6.26cm (±0.02cm) g) Pentagonal pyramid: Height = 10cm; Length of sides (Base) = 6.26cm (±0.02cm) h) Square prism: 10cm x 5cm x 5cm i) Square pyramid: Height = 10cm; Base diameter = 10cm j) Triangular prism: Height = 10cm; Length of sides (Base) = 10.35cm (±0.02cm);and h) Triangular pyramid: Height = 10cm; Length of sides (Base) = 10.35cm (±0.02cm) 2) Each solids is made of clear and durable plastic with rounded corners and edges, and 11 corresponding matching folding nets in 6 colours made from soft plastic that fits inside the solid.		

		3) Size of each solids ranges from: 100mm in height. 4) Comes with an activity guide. 5) Comes with a sturdy plastic transparent storage container with cover that can accomodate all the solids and the activity guide. 6) Must be free from toxic materials.		
LOT 8	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 hard, smooth surface, solid plastic material 3. Minimum thickness: 5 mm 4. Comes with a sturdy plastic transparent storage container with cover. 5. The items shall be free from toxic materials.		
LOT 8	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 1" x 1". 2. Twelve 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. 3. Comes in set of 6 equivalent to 72 pieces (minimum) contained in a storage box.		
LOT 8	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 60 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) Will not bend when played by eight-year-old child		

LOT 8	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) 20 to 30 combination of activities and teacher demonstration on cards b) 52 pcs (1 set) playing cards c) 7 to 9 pcs different spinners; d) 40 to 50 pcs coins; e) 10 to 15 pcs polyhedral number dice; f) 2 to 3 pcs dot dice; g) 20 to 30 two color counters or red and yellow chips; h) 2 to 5 pcs coin dice i) 6 to 8 pcs number dice 3. Come with storage container with cover.		
LOT 8	Tangram, 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 distinct in color. 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: Durable 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. 6) In this set, there is at least 6 distinct color that if the 7 pieces where used to form the largest square, each pieces have the same color (see sample picture). 6) Comes with a sturdy plastic that stores set of 30 tangram (210 pieces) and free from toxic materials.		
LOT 9	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. Shows the position of stars for any time and place. A2A Ø 4 inches World Globe and Sun are mounted within a Ø 12 inches transparent Star Globe 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. The horizon mounting allows the Globe to be set for any location. 5. Globe is supported on a cradle base made of hard/tough plastic. 6. 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 7. Includes training on use, maintenance, and storage. 8. Must be branded		
LOT 9	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:** 1. Primarily used as a reference to geographical & political information Globe diameter: minimum of 12 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. Must be branded		
LOT 9	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 20.0inches x 4.25inches x 2.0inches (minimum) 2. Three pieces of flexible colored foam 3. Three pieces fault structures a. Made of 6 colored layer of rubber or plastic b. Dimension: 13inches x 4.75inches x 3.5inches Tolerance ± 1 c. can demonstrates normal, reverse and slide slip fault 4. Erupting 5.0inches x 5.0inches minimum volcano for demonstration 5. With English User's Manual that includes Guide on how to assemble and use the model. 6. For geological study 7. Must be branded		
LOT 9	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: minimum of 12 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. Must be branded		
LOT 9	Model, Seismograph	**Functional Specifications:** Used to demonstrate how a seismograph records earthquakes and their comparative strengths **Performance Specifications:** Should be able to demonstrate how a seismograph records earthquakes and their comparative strengths **Design Specifications:** 1. Demonstrates the basic components and principles of operation of an actual seismograph unit. 2. The recording pen is attached to a weight suspended from a support that is connected to a metal base stand. 3. The support moves with the vibrations & the pen records on a recording paper as		

		the paper is manually pulled through a metal frame 4. Earthquakes are simulated by vibrating the table on which the model is mounted. 5. Consist of a roll of recording paper (65 mm wide) with mounting, recording pens, suspended weight, support with a painted metal base stand, recording frame, and table clamp (opening-65 mm). The metal stand rod (325 mm long) and metal support are chrome-plated. The metal frame is of galvanized iron sheet. 6. Base dimensions : 295mm x 155mm x 25mm (minimum) 7. With English User's manual that includes the operation and guide on how to assemble the model. 8. Must be branded		
LOT 9	Model, Solar System	**Functional Specifications:** Used to show the sun and the major planets of the solar system in three dimensions, in correct order from the nearest to the farthest from the sun **Performance Specifications:** Should be able to show the sun and the major planets of the solar system in three dimensions, in correct order from the nearest to the farthest from the sun **Design Specifications:** 1. shows the major planets of the solar system with each planet color code and shaded correctly 2. each planet can be manually operated to revolve around sun 3. Package Dimensions: 21 x 18.2 x 6 cm minimum 4. Made of plastic material 5. Must be branded		
LOT 9	Model, Sun Internal Structure, 1/4 part detachable	**Functional Specifications:** Used to illustrate the external and internal parts of the sun in three dimensions **Performance Specifications:** Should be able to illustrate the external and internal parts of the sun in three dimensions **Design Specifications:** 1. Model diameter: minimum of 12 inches 2. 1/4 part detachable and shows the different layer 3. Must have correct permanent markings of the following parts as follows: a. Core b. Radiation Zone c. Convection Zone d. Chromosphere e. Photosphere f. Prominence g. Sunspots 3. The layers of the model should be correctly labelled with permanent markings. 4. Made of Plastic 5. The base stand is made of hard/tough plastic. 6. The removable parts must be intact and not falling. 7. Must be branded		
LOT 9	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:** 1. A standard scientific instrument designed to demonstrate Sun-Earth-Moon relationships. Hand-operated gear drive that moves the Earth's 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 is at least 6 inches. 4. With English User's Manual that includes operation guide and guide on how to replace the bulb in the model		
LOT 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 must be: 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 1kilogram yellow sand and 1 kilograms green sand. 3. Clearly demonstrate the powerful forces of tectonic processes with this easy-to-use, hands-on model 4. Simulate the formation of folds, faults, erosion, tectonics, compression and rift valleys. 5. 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		
LOT 9	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. The volcano 10 inches -12 inches in length 2. The parts of the volcano named: Sill, Strata, Dike, Crust, Magma Chamber, Upper Mantle, Lower Mantle, and Vent 3. Detailed cross-section shows the inside of the volcano 4. With removable red tube 5. With 11inches -13inches clear, circular, plastic tray which fit in the entire model 6. It simulates the volcano 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		
LOT 9	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. 3. Rock size: 8 cm3 -20cm3 (8 mL - 20mL by water displacement) 4. 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) 5. The box is made of sturdy plastic, compartmentalized for each sample 6. Made up of non-toxic material, free from any sharp edges.		
LOT 10	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 (min.): 304 mm L x 393 mm H x 113 mm W 4. Made of non-toxic plastic material 5. Mounted on two post stand with stable base. 6. The model is washable and must be free from any labels. 7. Paints shall 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 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: ANIMAL CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD). e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 10	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 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 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, each resting in a magnetic board/frame; magnets should not separate from the cell model; cell models must not fall when the frame is vertically mounted 7. Product measures 600 mm (± 1 mm) long x 60 mm (± 1 mm) thick x 400 mm (± 1 mm) wide;		

		8. With a stable 45° stand 9. With name of the model: ANIMAL MEIOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 10. Safely packed in a box 11. With User's manual that includes the description in each phase of meiosis and storage instructions. 12. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	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 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 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, each resting in a magnetic board/frame; magnets should not separate from the cell model; cell models must not fall when the frame is vertically mounted 7. Product measures 600 mm (± 1 mm) long x 60 mm (± 1 mm) thick x 400 mm (± 1 mm) wide; 8. With a stable 45° stand 9. With name of the model: ANIMAL MITOSIS MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 10. Safely packed in a box 11. With English User's manual that includes the description in each phase of		

		meiosis and storage instructions. 12. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	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 16 -22 base pair section/layer DNA; 2. Base diameter: 7 inches - 9 inches 3. Model height range: 23 inches - 25 inches; 4. Stands upright with a support rod and mounted on a stable rotatable base/stand 5. 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; 6. The phosphate and deoxyribose can be removed and separated along with individual base pairs 7. Double helix structure 8. The model can also be uncoiled and ""unzipped"" to produce two strands. 9. Must be free from sharp parts 10. With name of the model: DNA MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 11. Safely packed in a box 12. With User's manual that includes description of the product, its parts, assembly and storage instructions 13. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	Model, Female Reproductive System (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. 4. The model is washable and must be free from any labels. 5. Paints shall 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 on the base 7. Dimensions (min.): 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 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: FEMALE REPRODUCTIVE SYSTEM (PELVIC ANATOMY) MODEL KEY CARD shall be placed at the top- center (Font style: Arial, Font Size: 22, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 10	Model, Human Brain	**Functional Specifications:** Used to demonstrate the anatomy of the brain. **Performance Specifications:** Must be able to illustrate the parts and functions of the sense organs of the human body, specifically the brain. **Design Specifications:** 1. Life-size, made of non-toxic plastic material. 2. The model can be disassembled into 8 parts: 4 cerebrum parts (temporal and occipital lobes, the frontal and parietal lobes); 2 brain stem parts (right and left) and 2 cerebellum parts (right and left) 3. Shows Thalamus, Pituitary gland, Hypothalamus and Pons 4. Color markings on the brain model illustrate arteries (red) and veins (blue), cranial nerves (yellow), along with the cortex (pink) and medulla fiber (white) 5. The model is washable and must be free from any labels. 6. Paints shall not be removed when washed with soap and water. 7. With name of the model: HUMAN BRAIN MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked on the base. 8. The model rests in a plastic base. 9. Dimension (±1 cm): 19 cm x 15 cm x 13cm 10. Safely packed in a box.		

		11. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HUMAN BRAIN MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 10	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, colorful 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 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, lung, liver, spleen, kidneys, partial skeleton 7. The model is washable and must be free from any labels. 8. Paints shall 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 marked on the baseboard. 10. With no sharp parts 11. Mounted on a stable baseboard 12. Dimensions (± 1cm): 80cm H x 30cm L x 6cm W 13. Safely packed in a box 14. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line		

		c. Layout Orientation: Portrait d. Title: HUMAN CIRCULATORY SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 24, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized,) g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 10	Model, Human Ear	**Functional Specifications:** Used to study the anatomy of the Human Ear. **Performance Specifications:** Must be able to show the parts of the sense organs of the human body, specifically the human ear. **Design Specifications:** 1. Dissectible into 4-6 parts 2. Colorful 3D model made of plastic material 3. Features: Outer ear, middle ear, inner ear, pinna, auditory canal, eardrum (tympanic membrane), vestibulocochlear nerve, semicircular canal, cochlea, Eustachian tube, including a removable hammer, anvil, and stirrup 4. Made of non- toxic materials 5. The model is washable and must be free from any labels. 6. Paints shall not be removed when washed with soap and water. 7. With name of the model: HUMAN EAR MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 8. Mounted on a stable base 9. Dimensions (min.): 33 cm x 23 cm x 20 cm 10. Safely packed in a box 11. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HUMAN EAR MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 10	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. Shows frontal section of the human body, in miniature, 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. 5. With no sharp parts 6. The model is washable and must be free from any labels. 7. Paints shall 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 on the baseboard. 9. Mounted on a stable baseboard. 10. Dimensions (min.): 38cm L x 24cm W x 6cm H 11. Safely packed in a box 12. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HUMAN ENDOCRINE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 10	Model, Human Eye	**Functional Specifications:** Used to demonstrate the anatomy of the eye. **Performance Specifications:** Must be able to show the parts of the sense organs of the human body, specifically the human eye. **Design Specifications:** 1. 3D Model made of non-toxic plastic material 2. With six (6) removable colored parts sectioned horizontally: a. Upper half of the sclera with cornea and eye muscle attachments b. Both halves of the choroid with iris and retina c. Lens d. Vitreous body 3. Features: sclera, iris, cornea, pupil, lens, ciliary body and muscle, conjunctiva, retina, optic nerve, retinal blood vessels, vitreous body		

		4. The model is washable and must be free from any labels. 5. Paints shall not be removed when washed with soap and water. 6. With name of the model: HUMAN EYE MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on one post stand with a stable base 8. Dimensions (±1 cm): 13 cm x 13 cm x 22 cm 9. Safely packed in a box 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HUMAN EYE MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled. h. Shall contain information on how to assemble and disassemble the model which shall occupy at the other side of the key card provided the prints are not visible to the other side. i. The information shall be in American English with correct grammar, spelling and punctuation.		
LOT 10	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:** 1. One-half scale, colorful relief model made of non-toxic plastic material. 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 and must be free from any labels. 5. Paints shall 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 on the base.		

		7. Mounted on a stable baseboard. 8. Dimensions (± 1cm): 81cm H x 30cm L x 6 cm W 9. Safely packed in a box. 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Portrait d. Title: HUMAN NERVOUS SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 20, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 10	Model, Human Nose (Nasal-Throat Anatomy)	**Functional Specifications:** Used to illustrate the anatomy of the human nose. **Performance Specifications:** Must be able to describe the parts and functions 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. 4. The model is washable and must be free from any labels. 5. Paints shall 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 on the base. 7. Mounted on a stable base. 8. Dimensions (min.): 12 cm x 21 cm (width x full height) 9. Safely packed in a box. 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Portrait d. Title: HUMAN NOSE MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width		

		shall point to the specific part being labeled.		
LOT 10	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. 2. Mounted on stable metal stand, stainless steel rod, Ø range 10mm to 12 mm, with 4 or 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 and must be free from any labels. 6. Minimum height of the human skeleton: 158 cm ±2 cm 7. With height range of 168cm – 188cm after mounting on the stand 8. Bones can be assembled or detached. 9. Enclosed in a polystyrene and packed in a sturdy box 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Portrait d. Title: HUMAN SKELETAL SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 10	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 3		

		removable vertebra and spinal cord 4. Interchangeable reproductive organs; female reproductive organs shall have a fetus which is removable; 5. 28 to 32 dissectible parts that include: removable head (parts of mouth and nasopharynx exposed) with half brain exposed, with arteries; eye with optic nerve; female breast plate with plate rib; right and left lung; 2-part heart, 2-part stomach; liver with gall bladder, large intestine, with appendix flap, small intestine, kidney half, female genital organs (2 parts), male genital organs (4 parts); 6. Height (min.): 85 cm. 7. True to life color and free from toxic materials 8. Will be able to stand upright with removable parts intact and not falling 9. The model is washable and must be free from any labels. 10. Paints shall 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 on the base. 12. Enclosed in a polystyrene and packed in a sturdy box 13. With 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: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	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 3. Base diameter: 18 cm (± 1cm) Height (including stopper): 30 cm (± 1cm) 4. Safely packed in a box 5. With User's manual that shall provide description of the model, operational and maintenance guide. 6. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold		

		13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	Model, Male Reproductive System	**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 4. The model is washable and must be free from any labels. 5. Paints shall 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 on the base. 7. Mounted on a stable base 8. Dimensions (min.): 26 cm H x 15 cm W x 25 cm L9. Safely packed in a box 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: MALE REPRODUCTIVE SYSTEM MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized,) g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 10	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 4. The liquid is sealed in the model 5. Inclusion: Two (2) extra stopper screws and dye 6. Dimensions (± 1cm): 30 cm L x 28 cm		

		W x 13 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: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color		
LOT 10	Model, Skin Block	**Functional Specifications:** Used to demonstrate the different layers of the human skin. **Performance Specifications:** Must be able to show the parts of the sense organs of the human body, specifically the human skin. **Design Specifications:** 1. 3D relief model made of non-toxic plastic material 2. Exhibits the main structures of the skin such as epidermis, dermis, hypodermis, sweat gland, sebaceous gland, hair shaft, hair follicle, arrector pili muscle, hair root, adipose tissue, pacinian corpuscle, pore of sweat gland duct, nerve and blood vessels 3. The model is washable and must be free from any labels. 4. Paints shall not be removed when washed with soap and water. 5. With name of the model: HUMAN SKIN BLOCK MODEL (Font style: Arial, Font size: 36, UPPERCASE, BOLD) permanently marked on the base. 6. Mounted on a stable base 7. Dimensions (min.): 25 cm L x 18 cm W x 27 cm H 8. Safely packed in a box 9. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HUMAN SKIN MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 32, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 11	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. 3. Features: ribosome, DNA, starch granule, outer membrane, inner membrane, stroma, thylakoid, granum, lamellae, and lumen. 4. The model is washable and must be free from any labels 5. Paints shall 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 (min.): 20 cm H x 25 cm L x 23 cm W 9.Safely packed in a box. 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: CHLOROPLAST MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 36, UPPERCASE, BOLD). e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 11	Model, Herbaceous Dicot Stem Section	**Functional Specifications:** Used to illustrate the dicot vascular structure. **Performance Specifications:** Must be able to show the vascular structures of a dicot stem. **Design Specifications:** 1. Colorful cross, radial and tangential structure of dicot stem 2. Cylindrical in shape, non-toxic, plastic model 3. Shows epidermis, cortex, vascular bundles, phloem, xylem, cambium, and pith. 4. The model is washable and must be free from any labels. 5. Paints shall not be removed when washed with soap and water. 6. With name of the model: HERBACEOUS DICOT STEM SECTION MODEL (Font style: Arial, Font size: 28, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on a stable rectangular wooden base. 8. Dimensions (min.): 33 cm dia. x 19 cm height 9. Safely packed in a box. 10. Comes with a 10 mil laminated key		

		card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HERBACEOUS DICOT STEM SECTION MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 11	Model, Herbaceous Monocot Stem Section	**Functional Specifications:** Used to illustrate the monocot vascular structure. **Performance Specifications:** Must be able to show the vascular structures of a monocot stem. **Design Specifications:** 1. Colorful cross and longitudinal structure of monocot stem. 2. Wedge shape, non-toxic, plastic model. 3. Shows the epidermis, vascular bundle, phloem, xylem and ground tissue. 4. The model is washable and shall be free from any labels. 5. Paints shall not be removed when washed with soap and water. 6. With name of the model: HERBACEOUS MONOCOT STEM SECTION MODEL (Font style: Arial, Font size: 26, UPPERCASE, BOLD) permanently marked on the base. 7. Mounted on a stable wooden base. 8. Dimensions (min.): 41 cm x 38 cm x 13 cm x 13 cm H 9. Safely packed in a box. 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts and with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: HERBACEOUS MONOCOT STEM SECTION MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 26, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 11	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 edges, non-toxic, true-to-life color, 3D replicas of invertebrates 2. With life-like shapes 3. The models are washable and must be free from any labels. 4. Paints shall not be removed when washed with soap and water.5. Each is packed in resealable plastic bag 6. Invertebrate models: a. Soft rubber Centipede - Dimension (min.): 10 cm x 4 cm b. Plastic Scorpion - Dimension (min.): 15 cm x 20 cm c. Plastic Shrimp/Prawn - Length (min.): 12 cm 7. Each invertebrate model comes with a 10 mil 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 (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Titles of the key card as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) d.1 INVERTEBRATE: CENTIPEDE MODEL KEY CARD Features: Tail-like rear pair of legs, segmented trunk, many legs, head, eye, antennae and maxilliped with poison fang d.2 INVERTEBRATE: SHRIMP MODEL KEY CARD Features: Eye, rostrum, carapace, abdominal segments, telson, tail, swimming legs, walking legs and antennae d.3 INVERTEBRATE: SCORPION MODEL KEY CARD Features: Pedipalp (pincer), eyes, legs, carapace, chelicerae, anus, telson, stinger e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized) g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 11	Model, Mitochondrion	**Functional Specifications:** Used as a visual representation of the working organelles that keep the cell in full energy. **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 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 and must be free from any labels.		

		5. Paints shall 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 (min.): 41 cm L x 21 cm W x 13 cm H 9. Safely packed in a box 10. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including the name; labeled with the required parts with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: MITOCHONDRION MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 36, UPPERCASE, BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled.		
LOT 11	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. 5. Dimensions (min.): 200 mm L x 115 mm W x 330 mm H 6. Made of non-toxic, plastic material 7. The model is washable and must be free from any labels. 8. Paints shall 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 10. Safely packed in a box 11. Comes with a 10 mil laminated key card that shall contain the actual colored picture of the model including name; labeled with the required parts with details as follows: a. A4 size copy paper (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Title: PLANT CELL MODEL KEY CARD shall be placed at the top-center (Font style: Arial, Font Size: 34, UPPERCASE,		

		BOLD) e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being labeled		
LOT 11	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 edges, non-toxic, true-to-life color, 3D replicas of vertebrates 2. With life-like shapes 3. The models are washable and must be free from any labels. 4. Paints shall not be removed when washed with soap and water. 5. Each is packed in resealable plastic bag. 6. Vertebrate models: a. Soft rubber SNAKE - Length (min.): 50 cm. b. Plastic balancing eagle with transparent pyramid tower Eagle (min.): 13 cm L x 10 cm W x 2 cm H Tower (min.): 4 cm L x 4 cm W x 5 cm H c. Plastic Shark - Length (min.): 15 cm 7. Each vertebrate model comes with a 10 mil 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 (80 gsm) b. Margin of 1/2 inch on all sides; with 2 pt width border line c. Layout Orientation: Landscape d. Titles of key cards as stated below: Shall be placed at the top-center (Font style: Arial, Font Size: 28, UPPERCASE, BOLD) d.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 d.2 VERTEBRATE: BIRD MODEL KEY CARD Features: Head, feather, tail, body, beak, eye, and wing d.3 VERTEBRATE: SNAKE MODEL KEY CARD Features: Head, eye, mouth, tongue, body, scales, and tail e. The model picture in white background shall be big enough to occupy the center part of the card before inserting labels. f. Labels shall be without frame (Font style: Arial, Font size: 12, First letter of the label is capitalized). g. Line with arrowhead of 1.25 pt width shall point to the specific part being		

		labeled.		
LOT 11	Protein Synthesis Manipulatives Demonstration Set	**Functional Specifications:** Used to demonstrate the synthesis of protein. **Performance Specifications:** Must be able to illustrate the synthesis of protein using information from DNA. **Design Specifications:** 1. Contains 33 pieces of reusable, non-toxic plastic, magnetic, and colorful teacher manipulatives (large DNA, mRNA, ribosome, tRNA, and amino acid models) 2. A 3' -5' DNA sense strand and a linear 5'-3' DNA anti-sense strand 3. With 180 student manipulatives (smaller size models) where students can manipulate on their tables 4. With teachers key for easy verification 5. With instructional video on the use or a how-to CD ROM 6. Safely packed in a box 7. With User's manual that shall provide assessment questions in the identification of a resulting amino acid sequence from a unique DNA sequence 8. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial; Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color.		
LOT 12	Model, Atomic Orbital, 82-pc	**Functional Specifications:** Used as a model/visual three dimensional (3D) representation of the shapes of the 14 different atomic orbitals **Performance Specifications:** A) Must be able to a) represent visually the 14 different atomic orbitals b) assemble/build the 14 atomic orbitals (basic s, p and d atomic orbitals) i) one (1) pc 1s-orbital, unhybridized ii) one (1) pc 2s-orbital, unhybridized iii) three (3) pc 2p-orbital unhybridized iv) five (5) 3d-orbital- unhybridized v) one unit with one 2s plus three 2p- orbitals as well vi) as one sp hybrid orbital vii) one (1) pc sp - unhybridized viii) one (1) pc sp2 - unhybridized viii) one (1) pc sp3 - unhybridized. **Design Specifications:** 1. Shape: Pear shaped lobes 2. Material : Polypropylene plastic 3. With 14 easy-to-assemble atomic orbitals ((basic s, p and d atomic orbitals 4. Approximate model heights including base range from 5–9 cm. 5. The set is composed of the following: a) nine (9) pc Grey atomic orbital parts b) 17 pc Purple atomic orbital parts		

		c) 19 pc Pink atomic orbital parts d) two (2) pc White octahedral atom parts e) one (1) pc Black octahedral 23mm carbon atom part f) 19 pc Pink atomic orbital parts g) one (1) pc Pink monovalent 17mm atom part h) one (1) pc Pink monovalent 23mm atom part i) one (1) pc Purple d atomic disc-shaped orbital part j) one (1) pc Black tetrahedral 23 mm carbon atom part k) one (1) pc Black trigonal bipyramidal 23 mm carbon atom part l) one (1) pc Pink octahedral 23 mm atom part m) one (1) pc Hydrogen H- Bond 17 mm atom part n) two (2) pcWhite 3-hole 17 mm atom parts o) two (2) pc White octahedral atom parts p) two (2) pc White 7-hole atom parts q) eight (8) pc Grey rigid 27 mm bonds r) 14 pc clear transparent Pedestal Stand/ bases 7. With ABS Plastic storage compartmentalized box with the following dimensions Length :10.7 inches (min) Width :6.4 inches (min) Height :2.3 inches (min) 8. With contents list in table form, as to: a) For atoms: quantity, name of element(symbol), color code, (number of holes,type of bond angles), diameter of the sphere .b) For links; bond types and use 9. With assembly guides, individual worksheets and instructional leaflets in English 10. With User's Manual/Teacher's instruction manual in English with full background information 11. For numbers #10 to 12; they must follow technical specifications a-e: a) For Contents List of materials, In Table form b) for User's Manual, 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 Assembly Guides/ instructional leaflets 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 12. Comes with a brand with more than forty years in existence		

LOT 12	Model, Biochemistry Molecular, (262 atom parts)	**Functional Specifications:** Used as a model/visual 3D representation of some biomolecules: proteins, nucleic acids, lipids, and carbohydrates, their structures **Performance Specifications:** A) Must be able to visually a) represent some biomolecules proteins, nucleic acids, lipids, and carbohydrates, their structures, and relate them to their function. b) observe the chemical bonding c) determine whether the biomolecule is polar or non polar given its structure B) Assemble all the different biomolecules and study them **Design Specifications:** 1. Type: Compact/Semi-space filling models 2. Shape of atom parts : Solid spheres 3. Material of spheres: Polypropylene (plastic) 4. Diameter of sphere/atom a) Hydrogen atom: 17 mm b) Carbon, nitrogen and oxygen atom: 23 mm 5. For compact models, bonds are represented by a) short links b) v-bonds links 6. Material of links : Low density polyethylene 7. Length of links a) short link :2 mm-11 mm b)v-bonds links : 13 mm 8. Color of links: a) short link: white/translucent b) v-bonds link : white links 9. With 262 color-coded plastic atoms and 260 links 10. The Biochemistry Molecular Model set includes the following: A. 262 color-coded plastic atom parts Quantity(pc) Element Color Number of holes Shape i) 68 Black Carbon atoms 42 pc Carbon Black Four holes Tetrahedral 24 pc Carbon Black Three holes Trigonal. 2 pc Carbon Black Two holes Linear ii) 34 Blue nitrogen atoms 2 pc Carbon Black Two hole Linear 12 pc Nitrogen Blue		

		Four holes Tetrahedral 12 pc Nitrogen Blue Three holes Trigonal 10 pc Nitrogen Blue Two hole Angular iii) 40 red oxygen atoms 20 pc Oxygen Red Two hole Angular 10 pc Oxygen Red Two hole Linear 10 pc Oxygen Red Single hole iv) Two (2) Yellow two hole angular sulfur atoms 2 pc Sulfur Yellow Two hole Angular v) Six (6) purple tetrahedral atoms 6 pc Phosphorus Purple Four hole Tetrahedral vi) 2 grey metal atoms One (1) pc Metal Grey Four hole Tetrahedral One (1) pc Metal Grey Six hole Octahedral vii) 110 White Hydrogen atoms 100 pc White atom links 10 pc Hydrogen White Two hole Linear B.With 260 links of plastic mushroom "links/bonds" a)150 NV-links, colorless b)100 Short white links c)10 V-links, grey C. With link remover tool Color : cream 9. Comes with two (2/ compartmentalized hard ABS plastic storage box with 4 compartments, with the following dimensions: Length: 23. 88 cm (min) Width: 16.76 cm (min) Thickness : 6.86 cm (min). 10. With contents/ list of materuials in		

		table form, as to: a) For atoms: quantity, name of element(symbol), color code, (number of holes,type of bond angles), diameter of the sphere b) For links; bond types and use 11. With Assembly Guides, individual worksheets and instructional leaflets in English 12. With User's Manual/Teacher's instruction manual in English with full background information 13. For numbers #10 to 12; technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 Assembly guides/ instructional leaflets 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 14. Comes with a brand with more than forty years in existence		
LOT 12	Model, Crystal Structures Set (Graphite, diamond, sodium chloride, carbon dioxide) 301 pc/set	**Functional Specifications:** Used as a model/ visual 3D represention of four crystal compounds **Performance Specifications:** A) Must be able to visually: a) represent the four different types of crystals and their properties: ionic, covalent, molecular, and metallic b) describe the difference in structure of crystalline (diamond) and amorphous (graphite) solids and d) observe the difference of the ionic, covalent and metallic bonds and e) determine whether a crystal molecule is polar or non polar given its structure B) Assemble the four crystal structures **Design Specifications:** 1. Type: Open/Ball and stick2. Shape of atom parts :Solid spheres 3. Material of spheres : Polypropylene with the following dimensions: a)Sodium, carbon: 23 mm b) Copper: 25 mm c) Chlorine: 32 mm 4. Types of links/bonds a) Medium (Single, rigid) links b) Long (double/triple, flexible) links 5. Material of links: Flexible plastic low density polyethylene (LDPE) solid links 6. Length of solid links/rods		

		a)Medium: 19-27 mm b) Long: 43 mm 7. Color of links/bonds Medium links: grey white/purple Long links: gray 8. The Crystal structure set is composed of the following: a) Diamond- covalent crystal model (30 atoms) I. Element Number of holes Angle Shape Color Quantity(pc) i) Carbon (4 hole) 109.5° Tetrahedral Black 30 ii) Placed in resealable plastic bag II. Links/Bonds Color Quantity (pc) i) Medium links/ Bonds Grey white 40 ii) Placed in resealable plastic bag b) Sodium chloride (NaCl)- i/onic crystal model (27 atoms) I. Element Number of holes Shape Color Quantity(pc) i) Chlorine 6 hole Octahedral Green 13 ii) Sodium 6 hole Octahedral Silver gray/grey 14 iii) Placed in two (2) separate resealable plastic bags II. Links/Bonds Color Quantity (pc) i) Medium Grey white 54 ii) Placed in resealable plastic bag c) Graphite - covalent crystal model (45 atoms) This kit is designed to make a three layer model of graphite having 15 carbon atoms in each layer. I. Element Number of holes Color Quantity (pc) i) Carbon		

		5 hole Black 45 ii) Placed in resealable plastic bag II. Links/Bonds Color Quantity (pc) i) Medium(single, rigid) Grey/ white 51 ii) Medium (single, rigid) Purple 16 iii) Placed in two (2) separate resealable plastic bag d) Copper - metallic crystal model/atoms + links = 50 pc Copper : 14 atoms Crsytal structure : face center cubic I. Element Number of holes Color Quantity (pc) i) Copper 8 hole Red 8 ii)Copper 6 hole Red 6 iii) Placed in two (2) separate Ziploc plastic bag II. Links/Bonds - 36 pc Links/Bonds Color Length Quantity (pc) i) Medium Grey white 65 mm 24 ii) Long Grey white 10012 iii) Placed in two (2) separate resealable plastic bag 7. With Link remover tool/Assembly tool 8. With compartmentalized storage box Material : ABS plastic 9. Package Dimensions a) Length: 23.5 cm b) Width: 17 cm c) Thickness :7 cm 10. With contents/ list in table form, as to: a) For atoms: quantity, name of element(symbol), color code, (number of holes,type of bond angles), diameter of the sphere b) For links; bond types and use 11. With assembly guides, individual worksheets and instructional leaflets 12. With User's Manual/Teacher's instruction manual in English with full background information 13. For numbers #10 to 12; they must follow technical specifications a-e: a) For Contents List of materials, In Table		

		form b) for User's Manual, 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 12. Comes with a brand with more than forty years in existence		
LOT 12	Model, Molecular, Inorganic/Organic (307-pc)	**Functional Specifications:** Used as a model/visual three dimensional (3D) representation of the different inorganic/organic compounds **Performance Specifications:** Must be able to : a) visually represent the molecular structures of many inorganic/organic molecules and b) assemble inorganic/organic compounds to show covalent and ionic bonding and c) determine whether a molecule is polar or non polar given its structure **Design Specifications:** 1. Type: Ball and stick 2. Shape of atom parts : Solid spheres 3. Material of spheres: Polypropylene 4. Diameter of sphere/atom a) Hydrogen and chlorine atoms : 17 mm b) Other atoms: 23 mm 5. Material of links: Flexible plastic low density polyethylene (LDPE) solid links 6. Length, color and quantity of solid links/rods a) Short links i) Type: For space filling ii) Length : 11 mm ii) Color: Translucent/white iii)Quantity: 60 pc b) Medium links i) Type: Single, rigid ii) Length: 27 mm iii) Color: Grey iv)Quantity: 60 pc c) Long links i) Type: Double/triple/flexible ii) Length: 43 mm iii) Color: Grey iv) Quantity : 30 pc 5. With 126 atoms, 30 orbitals, 150 links and 1 short link remover tool 6.The inorganic/organic molecular model set is composed of the following: I. Shape No. of holes		

		Angles Element/atom Color Qty(pc) a) Tetrahedral 4 holes 109°28' Carbon Black 30 b) Trigonal 5 holes 90°/120° Carbon Black 8 bipyramidal c)Linear 2 holes 180° Carbon Black 2 d) Trigonal 3 holes 120° Carbon Black 6 e) Divalent 2 holes 105° Oxygen Red 14 f) Monovalent 1 hole Hydrogen White 45 g)Tetrahedral 4 holes 109°28' Nitrogen Blue 4 h)Divalent 2 holes 105° Sulfur Yellow 1 i) Tetrahedral 4 holes 109°28' Sulfur Yellow 1 j) Tetrahedral 4 holes 109°28' Phosphorus Purple 4 k) Monovalent 1 hole 180° Chlorine Green 8 l) Octahedral 6 holes 90° Metal Silver/grey 2 m)Octahedral 6 holes 90° Metal Silver/grey 2		

		II. Orbitals: 30 pc Orbitals Lengths Color Quantity (pc) a) Pi orbitals 38 mm purple 6 b) Pi orbitals 38 mm pink 6 c) P orbitals 38 mm purple 6 d) P orbitals 38 mm pink 6 e) P orbitals 38 mm beige 6 III. Links (represented the bonds): 150 links Material of bonds/links : Rigid, non-toxic Flexible plastic (LDPE) Links Type/Kind of bonds Length Color Quantity(pc) a) Medium links (single, rigid) 27 mm Grey 60 b) Long links double/triple/flexible 43 mm Grey 30 c) Short links 11 mm Translucent/ 60 (for space filling) White 6. One (1) pc Link remover tool/Assembly tool 7. With storage box with four (4) compartments with the following dimensions: a) Length: 23.88 cm min b) Width: 16.76 cm min c) Thickness : 6.86 cm min 8. Material of storage box: ABS plastic 8. Color of storage box: Grey 9. With contents/ list of materials, in table form, as : a) For atoms: quantity, name of element(symbol), color code, (number of holes,type of bond angles), diameter of the sphere. b) For links; bond types and 10. With Assembly guides, Individual Worksheets and Instructional leaflets 11. With User's Manual/Teacher'sManual in English with full background information 12 For numbers #9 to 12; technical specifications a-e must be strictly followed: a) For Contents/ List of materials, In Table form		

		b) For User's Manual, 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) With colored pictures, drawings/illustrations e) in ten (10) mil laminated that shall contain the 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 13. Comes with a brand with more than forty years in existence		
LOT 12	Model, Sublevel Orbitals of the Atom (Quantum)	**Functional Specifications:** Used as a visual representation of the spatial three-dimensional (3D) model of the shapes of the orbitals (azimuthal quantum number) of the sublevels of the major energy levels of the first ten elements of the Periodic Table **Performance Specifications:** Must be able to : A)visually represent the spatial three-dimensional (3D) model of the shapes of the orbitals to describe the quantum mechanical model (azimuthal quantum model) of the first ten elements in the Periodic Table a) two (2) pc s orbitals i)1s-orbital and ii)2s-orbital, b) the three (3) p orbitals i) 2px-orbital ii) 2py-orbital, and iii) 2pz-orbital c) the position and number of electrons along the x, y and z axis d) the orbitals of the sublevels of the major energy levels B) Assemble the sublevel orbital of the first ten elements of the Periodic Table based on the electronic configuration of each, to review on the four (4) quantum numbers and rules in filling up the orbitals (the Aufbau Principle, Pauli's exclusion principle, and Hund's rule) , to study and learn the correct position and number of electrons along the x, y and z axis,as well as the orbitals of the sublevels of the major energy levels **Design Specifications:** 1. With 12 Models of the Sublevel orbitals of the atom 2. With color-coded components which include the following: 3. ORBITALS a) 1s-orbitals (K shell) Shape of 1s orbital: Small sphere Material: Plastic Color: Blue Quantity: 12 pc b) 2s-orbitals (L shell)		

		Shape of 2s orbital : Large sphere Material: Plastic Color: Orange Quantity: 12 pc c) p-orbitals (M shell) i)px -orbitals Shape of orbital : Pear shaped lobes Material: Plastic Color: Red Quantity: 24 pc ii) py-orbitals Shape of orbital: Pear shaped lobes Material: Plastic Color: Yellow Quantity: 24 pc iii) pz -orbital Shape of orbital : Pear shaped lobes Material: Plastic Color: Green Quantity: 24 pc d) Bases Shape: Spherical Material : Plastic Color: White Quantity : 12 pc e) Crossbars (x and z axes) Shape: Cross-shaped Material : Durable non-toxic plastic Color: White Quantity : 12 pc f) Electrons Shape: Small circular cutouts in a plastic sheet Material : Plastic Color: Black Quantity : 1 whole plastic sheet with cut out 128 pc electrons g) Uprights (y axes) Shape: Long, cylindrical sticks Material : Plastic Color: Cream Quantity: 12 pc 4. Individually packed per item as segregated above in separate resealable plastic bags 5. Comes with compartmentalized hard storage box Material of storage box: ABS plastic Color: Grey Number of compartments : Four (4) 6. With List of Contents in the set 7 With Teacher's Guide 8. With 30 Student Worksheets and Guides, Part I and Part II 9. With quantum numbers chart provided on each student worksheet to help students assemble the models starting with the 1s orbitals. 10. Detailed instructions provided. 11. For numbers 6-10, 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 12. Comes with a brand with more than forty years in existence		
LOT 12	Model, VSEPR, 14 shapes (50-pc)	**Functional Specifications:** a) Used as a visual 3D representation of the 14 different shapes of simple molecules with corresponding angles to perform exercises on VSEPR theory using models b) describe the geometry of simple compounds **Performance Specifications:** A) Must be able to visually: a) represent all the 14 different shapes of simple molecules with corresponding angles to perform exercises on VSEPR theory b) describe the geometry of simple compounds B) Assemble the 14 different shapes of VSEPR Models and study them **Design Specifications:** 1. Type: Ball and stick 2. Shape of atom parts : Solid spheres 3. Material of spheres : Polypropylene (plastic) 4. Diameter of sphere/atom a) Hydrogen, halogen, and metal sphere/atom: 17 mm b) Other atoms: 23 mm 5. The VSEPR Theory model set is composed of the following: I. With central atoms to construct 14 VSEPR shapes; Color Number of holes Shape Example metallic grey 2 hole linear (e.g.,beryllium in BeCl2) yellow 3 hole trigonal (e.g., sulfur in SO3) black 4 hole tetrahedral(e.g., carbon in CH4) yellow 4 hole tetrahedral (e.g., sulfur in SO3 2-) red 4 hole tetrahedral (e.g., oxygen in H2O) light green 4 hole tetrahedral (e.g., flourine in HF) light brown 5 hole trigonal bipyramidal (e.g., phosphorus inPCL5) yellow 5 hole trigonal bipyramidal (e.g., sulfur in SF4) green 5 hole trigonal bipyramidal (e.g., chlorine in ClF3) purple 5 hole trigonal bipyramidal		

		(e.g., xenon in XeF2) grey 6 hole octahedral (e.g., metal complexes) brown 6 holeoctahedral (e.g., bromine in BrF5) copper 6 hole octahedral (e.g., copper complexes) b. With the following links/bonds: Quantity(pc) Color Links Bonds 50 grey medium linkssingle bonds 15 purple medium linkslone pairs 6 white short links cyanide group 6. Comes with short link remover tool 7. Comes with storage box Material of storage box: ABS plastic Number of compartments : Four (4) 8. With detailed assembly guides and instructions provided. 10. With assembly guides, individual worksheets and instructional leaflets 11. With User's Manual/Teacher's instruction manual in English with full background information 12 For numbers #9 to 12; technical specifications a-e must be struictly followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 13. Comes with a brand with more than forty years in existence		
LOT 12	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 Geometrical Solids which includes these core shapes: a) Cube: 10cm x 10cm x 10cm b) Cone: Height = 10cm; Base diameter = 10cm c) Cylinder: Height = 10cm; Base diameter = 10cm d) Hexagonal prism: Height = 10cm; Length of sides (Base) = 5.18cm (±0.02cm) e) Hexagonal pyramid: Height = 10cm; Length of sides (Base) = 5.18cm (±0.02cm) f) Pentagonal prism: Height = 10cm; Length of sides (Base) = 6.26cm (±0.02cm)		

		g) Pentagonal pyramid: Height = 10cm; Length of sides (Base) = 6.26cm (±0.02cm) h) Rectangular prism: 10cm x 5cm x 10cm i) Square pyramid: Height = 10cm; Base diameter = 10cm j) Triangular prism: Height = 10cm; Length of sides (Base) = 10.35cm (±0.02cm);and h) Triangular pyramid: Height = 10cm; Length of sides (Base) = 10.35cm (±0.02cm) i) Sphere: Diameter of Great Circle = 10cm j) Semisphere: Diameter of Great Circle = 10cm k) Square prism: 10cm x 5cm x 5cm l) Small cube: 5cm x 5cm x 5cm m) Small Triangular Prism: Height = 10cm; Length of sides (Base) = 5.18cm (±0.02cm) n) Small Cylinder: Height = 10cm; Base diameter = 5cm 3) Made of hard, durable plastic 4) Comes in a sturdy plastic container with cover to accommodate the 17 or more types of geometric solids 5) Surface finish is smooth on all items.		
LOT 13	Advanced Electromagnetism Kit	**Functional Specifications:** used to demonstrate the relationship between electricity and magnetism **Performance Specifications:** should be able to demonstrate the relationship between electricity and magnetism **Design Specifications:** 1. The kit contains the following: a. 2 -Bar Magnets: 150 mm X 12 mm X 8 mm; magnet strength: 2 times its weight, correctly labeled and or color coded to indicate North and south poles b. 6 -Magnetic compass, 20 mm diameter, correct orientation c. 2 -U-Magnets, 6 mm X 16 mm cross section X 100 mm long, jaw opening: 50 mm; magnet strength: 2 times its weight; correctly labeled and or color coded to indicate North and south poles d. 1 -Magnetic field mapper-9 cm X 16 cm clear transparent casing contains iron filings immersed in non mold forming viscous liquid, should clearly show magnetic lines e. 1 -spool magnet wire (insulation coated) #20, 500 g. f. 1 - steel rod 12 mm dia x 100 mm long g. 2 -copper wire solid, #14, insulated,15 cm long each wire h. 3- wood blocks 25 mm X 75 mm X 100 mm with pilot holes that run through center of block 2. Comes with plastic container that can accomodate the items indicated above.		
LOT 13	Basic Lens Set, acrylic	**Functional Specifications:** Used to demonstrate refraction of light **Performance Specifications:** Should be able to demonstrate refraction of light **Design Specifications:** 1. Set of 7 lenses, acrylic material, secured in compartmentalized storage box, with the following types and diameters: 1-double convex, 50 mm ±2 mm		

		1-plano convex, 50 mm ±2 mm 1-double concave, 50 mm ±2 mm 1-plano concave, 50 mm ±2 mm 1-convex-concave lens, 50 mm ±2 mm 1-concave-convex lens, 50 mm ±2 mm 1-double convex lens, 75 mm ±2 mm 2. Must be contained in one storage box. 3. No sharp edges. 4. Free from toxic materials.		
LOT 13	Diffraction slits & Diffraction grating Set	**Functional Specifications:** Used to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction **Performance Specifications:** Should be able to investigate the concept of diffraction of light and to calculate wavelength of light of certain color through diffraction **Design Specifications:** The set is composed of: 1) Diffraction slits consist of: 1 frame single slit1 frame double slitsgrating size: 36 mm x 18 mmframe size: 50 mm x 50 mm x 2 mm thick 2) Diffraction Gratings consist of: 1 frame 50 lines/mm1 frame 100 lines/mm1 frame 300 lines/mm1 frame 600 lines/mmgrating size: 36 mm x 18 mmframe size: 50 mm x 50 mm x 2 mm thick 3) Each frame placed in comparmentalized storage box		
LOT 13	Helical Spring	**Functional Specifications:** Used to demonstrate transverse waves **Performance Specifications:** Should be able to demonstrate transverse waves **Design Specifications:** 1. Wire material: Galvanized Spring Steel Wire; 2. Unstretched Length range: 1.82 meter to 1.84 meter; 3. Can be stretched to 3 times its length without deformation; 4. Coil Outside Diameter: 20 mm to 22mm; 5. Wire Diameter: 1.25 mm to 1.43mm; 6. Weight of Spring: 805 grams to 815 grams; 7. Number of turns per centimeter: 7 to 8 turns; 8. With circular hooks (on both ends), hook diameter is 20 mm; and 9. Packed in a carton or box made from cardboard.		
LOT 13	Lamp, Halogen, Low voltage with table top stand	**Functional Specifications:** Used to produce halogen light for open viewing **Performance Specifications:** Should be able to produce halogen light for open viewing **Design Specifications:** 1. tungsten filament2. Bromine filled3. Length minimum: 48 mm, diameter: 12 mm4. Lights on 12 vlts DC5. With socket, socket housing mounted on table top stand6. with external connectors for connecting to AC-DC variable power supply		
LOT 13	Musical Instrument (Miniature Guitar)	**Functional Specifications:** Used to demonstrate musical application of		

		standing waves **Performance Specifications:** Should be able to demonstrate musical application of standing waves **Design Specifications:** 1. Mini acoustic type, half-size guitar, any color, surface finish: varnish 2. Made of good quality wood without sign of warp 3. Minimum dimensions: Overall length: 33 inches, Width:12 inches, Depth: 3 1/2 inches 4. Standard guitar steel strings (Nos. 1-6), 18 fret minimum		
LOT 13	Optical Bench Set	**Functional Specifications:** Used for mounting lenses, mirrors, screen, light source and other optics components **Performance Specifications:** Should be able to mount lenses, mirrors, screen, light source and other optics components in place **Design Specifications:** 1. This Complete Set includes: a) 1-meterstick, with centimeter and millimeter graduations b) 1-lens support for the 50 mm diameter lensand 50 mm diameter mirrors (included in this package); should be stable when mounted on meterstick, smooth sliding c) 1-lens support for 75 mm lens, should be stable when mounted on meterstick, smooth sliding d) 1- screen support, should be stable when mounted on meterstick, smooth sliding e) 5-white board screens (10 cm x 12.5 cm, approx.) f) 2-metal supports for meter stick, should be stable, meterstick should not tip off 1-candle holder, should be stable when mounted on meterstick, smooth sliding g) 1-paraffin candle 2. Stand supports for meter stick, holders for lenses, mirrors, screens, and candle should be placed inside one compartmentalized casing; 3. With English User's Manual that includes operation guide.		
LOT 13	Prism Set	**Functional Specifications:** Used to demonstrate characteristics of refraction of light **Performance Specifications:** Should be able to demonstrate characteristics of refraction of light **Design Specifications:** 1. Set is composed of:a) 1-Rectangular block, solid acrylic, frosted on one side minimum dimensions: length = 70 mm width = 50 mm thickness = 20 mm b) 1-Right angle prism, solid acrylic, frosted on one side with the following minimum dimension: thickness: 10 mm minimum, base = 40 mm minimum height = 65 mm minimum		

		c) 1-Semi-circular block, solid acrylic, frosted on one side minimum dimensions: diameter=100 mm, thickness 10 mm 2. Secured in plastic storage casing; 3. Should be clear and no sign of cloudiness		
LOT 13	Set of Tools: Ball Peen Hammer, handle length is 11", 350g approx. weight, 1 pc/set	**Functional Specifications:** Used to peen dent surfaces in metals **Performance Specifications:** Should be able to to peen dent surfaces in metals **Design Specifications:** Ball Peen Hammer, handle length 11 inches, 350 grams gross weight approx., 1 pc. /set		
LOT 13	Set of Tools: Long Nose Pliers, 6", 1 pair/set	**Functional Specifications:** Used to bend tiny solid wire connectors **Performance Specifications:** Should be able to bend tiny solid wire connectors **Design Specifications:** Long Nose Pliers with side cutter, 6 inches long, chrome vanadium material, 1 pair/set		
LOT 13	Set of Tools: Mechanical Wire Cutter and Pliers, 6.5", 1 pair/set	**Functional Specifications:** Used to bend large wires **Performance Specifications:** Should be able to bend large wires **Design Specifications:** Mechanical-Wire Cutter and Pliers, 6 1/2 inches, chrome vanadium material, 1 pair/set		
LOT 13	Set of Tools: Precision Screwdrivers Set, 6 pcs/set, with plastic casing, 1 set/set	**Functional Specifications:** Used to drive precision screws **Performance Specifications:** Should be able to to drive precision screws **Design Specifications:** Precision Screwdrivers Set, 6 pc. (3 phillips, 3 flats)/set, with plastic casing, 1 set		
LOT 13	Set of Tools: Screwdriver, flat, 6", 1 pc/set	**Functional Specifications:** Used to drive flat head screws **Performance Specifications:** Should be able to drive flat head screws **Design Specifications:** Screwdriver flat, 3/16 inches tip width x 6 inches long, chrome vanadium material, 1 pc. /set;		
LOT 13	Set of Tools: Screwdriver, phillips, 6", 1 pc/set	**Functional Specifications:** Used to drive phillips type screws **Performance Specifications:** Should be able to drive phillips type screws **Design Specifications:** Screwdriver, Phillips, Point size blade #3 x 6" long, chrome vanadium material, 1 pc/set;		
LOT 13	Set of Tools: Soldering Iron, 60 watts, 1 pc/set	**Functional Specifications:** Used to heat electrical contacts for permanent joints **Performance Specifications:** Should be able to heat electrical contacts for permanent joints **Design Specifications:** Soldering Iron, 60 watts, small type, wooden handle, 1 pc. /set;		

LOT 13	Set of Tools: Soldering Lead, Ø1mm, Grade 60/40, Wt.: 1 lb/spool, 1 spool/set	**Functional Specifications:** Used to provided permanent joint for different electrical components **Performance Specifications:** Used to provided permanent joint for different electrical components **Design Specifications:** Soldering Lead, Ø 1 mm, Grade 60/40, weight: 1 lb./spool, 1 spool/set		
LOT 13	Set of Tools: Soldering Paste, 50 grams/can, 1 can/set	**Functional Specifications:** Used to provide better adhesion of solder lead to electrical joints **Performance Specifications:** Used to provide better adhesion of solder lead to electrical joints **Design Specifications:** Soldering Paste, all purpose flux, non-corrosive, 50 grams/can, 1 can/set;		
LOT 13	Set of Tools: Tweezers, stainless steel, with curved tips, 6.5" long, 1 pair/set	**Functional Specifications:** Used to hold and pick tiny electronics components **Performance Specifications:** Used to hold and pick tiny electronics components **Design Specifications:** Tweezers, stainless steel, with curved tips, 6 1/2 inches long, 1 pair/set;		
LOT 13	Toy Car, non-battery powered	**Functional Specifications:** Used to demonstrate that some things like people can make objects move **Performance Specifications:** Should be able to demonstrate that some things like people can make objects move **Design Specifications:** 1. minimum dimensions: 50 cm x 30 cm x 25 cm (L x W xH) 2. Material: plastic, any color or color combination 3. 4-wheels free to turn 4. not driven by any power source except the pushing by people		
LOT 13	Vacuum Tube and Manual Vacuum Pump	**Functional Specifications:** Used to demonstrate the effect of air resistance on the motion of freely falling objects **Performance Specifications:** Should be able to demonstrate the effect of air resistance on the motion of freely falling objects **Design Specifications:** A. Vacuum tube: 1. 36 inches (910 mm) long x 2.25 inches (55 mm) dia. minimum, transparent acrylic 2. With stopcock mounted in a rubber stopper on one end, and solid rubber stopper on the other end 3. Supplied with 13 inches long vinyl tubing for connection to vacuum pump 4. Includes metal disc and a feather as specimens B. Vacuum pump: 1. Hand operated 2. With pressure gauge 3. Pump is sealed, self lubricatiing, with removable cap, and elastic valve 4. Fixed on outer port to provide quick		

		vacuum release 5. Noozle fits 1/4 inches tubing		
LOT 13	Dissecting Set with pan	**Functional Specifications:** Used to perform a wide variety of dissections. **Performance Specifications:** Must be able to aid in classifying different animal tissues during dissection. **Design Specifications:** 1. 10 pc dissecting set that includes the following stainless steel instruments:• 1 piece surgical scissors, length 110mm (±1 mm); • 1 piece fine point scissors, length 110mm (±1 mm); • 1 piece fine point curved forcep, length 110mm (±1 mm); • 1 piece fine point straight tip forcep, length 110mm (±1 mm); • 1-piece tissue forcep or mosquito forcep, curved tip • 1-piece scalpel 4 cm blade • 1-piece scalpel handle • 1-piece teasing needle angular with chuck • 1-piece teasing needle straight with chuck • 1-piece mall probe and seeker 2. In a rectangular leatherette pouch or vinyl zippered case; 3. With 1-piece stainless steel dissecting pan (min.) of 11 inches x 7 inches x 1 - 1/2inches 4. "Stainless steel" shall be embossed or engraved on the items		
LOT 13	First-Aid Kit	**Functional Specifications:** Used to provide immediate medical help in an emergency. **Performance Specifications:** Must be able to treat minor illnesses and injuries in an emergency. **Design Specifications:** 1. First Aid Quick Reference Guide in English, 1pc 2. Sterile Gauge Swab(4in. x 4in. x12 ply), 100 pcs,/pack, 1 pack 3. Adhesive strips/Band -Aid, 50 pcs/pack, 2 packs 4. Gloves,disposable, size # 7.5 - # 8.5, 2 pairs 5. Hypo allergenic adhesive tape, 5cm x 5m, 2 rolls 6. Triangular bandage/arm sling, 90cm x 90cm x 120cm, 2pcs 7. Safety pins, 1- 1/4 inches (12 pcs), 1-3/4 inches (12 pcs) 8. Stainless steel bandage scissors, 2pcs 9. Betadine, 60ml, 2 bottles 10. Dust mask, 2pcs 11. Hand towels or face towels, white color, 6 pcs 12. Gauze bandage, (min.): 5cm x 4m, 2 rolls 13. Antiseptic handwash/germicidal soap, 60 gms, 2pcs 14. Torniquet, 2 pcs 15. Spirit of ammonia, 30ml, 1 bot. 16. Burn cream ointment, 20g to 30g, 1 tube 17. Medical tweezers min. 8cm, plastic , 2pcs 18. Plastic bags, resealable, minimum of 24pcs, 100mmx180mm, 24pcs;		

		150mmx230mm 19. Cotton balls , 50 balls in a sealed package, 2 packs 20. Hot and Cold pack, reuseable, 1 pack 21. Water resistant, sturdy case with handle that can accommodate all of the above listed items. 22. Expiration dates of Betadine, Ammonia and Burn ointment shall be at least two years after pre-delivery inspection. 23. All items must be branded and have quality Control markings (local/international)		
LOT 13	Glass Cover Slips, 100's/box	**Functional Specifications:** Used to secure the wet mount sample specimen. **Performance Specifications:** Must be able to secure the wet mounted sample specimen. **Design Specifications:** 1. Pre-cleaned cover glasses and not sticking from each other 2. Material: Transparent glass 3. Quantity: 100's/small plastic box 4. Dimension: 22 mm x 22 mm square 5. Thickness: 0.13 mm - 0.17 mm 6. There shall be no chipped edges 7. Safely packed in a plastic box		
LOT 13	Glass Slides, 72's/box	**Functional Specifications:** Used to contain the specimen for examination under the microscope. **Performance Specifications:** Must be able to accommodate the specimen subject for examination under the microscope. **Design Specifications:** 1. Clear, flat glass; free from moisture, dirt, and film; 2. No color, no frost and no chipped edges 3. Dimension: 75 mm (±1 mm) x 25 mm (± 1 mm); 4. Thickness: 1.1 mm (± 0.1 mm) 5. No sharp edges and pointed corners 6. Packed in a box containing 72 slides with thin paper sheets in between them		
LOT 13	Microscope, Compound, 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 are 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; 120 mm x 120 mm (±10mm); glass slides		

		should 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: 50mm (± 1 mm), 2-sided, plane-concave 8. No sharp metal parts 9. With wooden storage case; and immersion oil provided 10. With User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions. 11. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used must be in full color 12. Comes with training video in USB on the use, care, and maintenance 13. Warranty on parts and labor: 2 years		
LOT 13	Prepared Slide Set, Microscope, 25's	**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 show the specimen when viewed under a microscope. **Design Specifications:** 1. Quantity: Set of 25 pieces glass slides 2. Dimension: 75 mm (±1 mm) x 25 mm (±1 mm); 3. Thickness: 1.1 mm (± 0.1 mm) 4. Individually sealed and protected by a cover slip/glass cover; 5. Colorful slides of the following: insects (4); plants (7); animals/microbes (7); Human tissues (7) 6. Either of the following insects: wing of housefly, mosquito larvae, Drosophila melanogaster, housefly head, aphids. 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. 8. Either of the following animals/microbes: Hydra budding, Euglena, diatoms, Daphnia w.m., Amoeba proteus, Paramecium w.m., Planaria w.m., Planaria c.s., Ascaris mitosis, Vorticella, lancelet w.m., Escherichia coli, Staphyloccocus aureus, Lactobacillus spp. 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 labeled for specimen identification 12. Slides are packed in a fitted wooden box that contains interior padding to prevent breakage 13. Clear, no finger-smudged and no chipped edges slide 14. Includes instructions on how to clean and properly store the slide in coated paper-glossy finish (105 mm x 140 mm), Font style: Arial, Font size: 10, written in American English with correct grammar, spelling and punctuation.		
LOT 13	Prepared Slide Set, Mitosis & 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 a. Ascaris megalocephala embryology. Sec. of uteri showing maturation stages (meiosis). Polar bodies can be seen. b. Giant chromosomes, smear from salivary gland of Chironomus, carefully fixed and stained c. Lilium, anther t.s., microspore mother cells showing telophase of first and prophase of second (homeotypic) division d. Meiotic and mitotic stages in sec. of Salamandra testis. Many meiotic and mitotic stages can be observed. e. Mitosis, l.s. from Allium root tips showing all stages of plant mitosis carefully stained with iron-hematoxyline f. Mitotic stages in sec. through red bone marrow of mammal 2. Dimension: 75 mm (±1 mm) x 25 mm (± 1 mm); 3. Thickness: 1.1 mm (± 0.1 mm) 4. Individually sealed and protected by a cover slip/glass cover; 5. Each slide is permanently labeled for specimen identification; 6. Writing the scientific name with correct spelling shall be properly observed; 7. Slides are kept in a fitted plastic storage box that contains interior padding to avoid breakage 8. Includes instructions on how to clean and properly store the slide in coated paper-glossy finish (105 mm x 140 mm), Font style: Arial, Font size: 10, written in American English with correct grammar, spelling and punctuation.		
LOT 14	Aneroid Barometer Set (Demonstration Type)	**Functional Specifications:** Used to demonstrate how an aneroid barometer works **Performance Specifications:** Should be able to to demonstrate how an aneroid barometer works **Design Specifications:** 1. The unit is supplied with rubber compression bulb with tube, changes in pressure can be demonstrated and obtained by compressing the rubber bulb 2. Dual graduation: mmHg and mbar(hPa).		

		3. Range: 960 to 1060 mbar with mmHg equivalent 4. Dial Diameter: minimum of 100 mm 5. With English User's manual that includes the operation and reset procedure. 6. Must be branded		
LOT 14	Aneroid Barometer, wall-mount	**Functional Specifications:** Used to measure the prevailing atmospheric pressure in a locality in real time **Performance Specifications:** Should be able to measure the prevailing atmospheric pressure in real time **Design Specifications:** 1. Range: 960 mbar to 1060 mbar 2. Dual graduation: mmHg and mbar(hPa) 3. Dial Diameter: 100 mm to 130 mm 4. Materials: plated bezel, scratch-free cover glass, and plastic base 5. Shock resistant, heat resistant 6. With English User's manual that includes the operation and reset procedure. 7. Must be branded		
LOT 14	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 mm to 52 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		
LOT 14	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) 21 mm 3. Body: Stainless steel		
LOT 14	Sling Psychrometer	**Functional Specifications:** Used to measure relative humidity **Performance Specifications:** Should be able to measure relative humidity **Design Specifications:** 1. Composed of two red spirit thermometer in Celsius with temperature ranges: -5°C to +50 °C 2. Equipment Size: (7 -8 inches long x 1-2inches diameter) 3. Built -in Psychrometer Water Reservoir 4. Includes a wick for Wet Bulb 5. Wick Replacement Kit- containing 4 wicks		

		6. Build in Slide rule construction for quick conversion temperature reading to relative humidity 7. Includes additional two thermometers for replacement with individual plastic or hardboard case 8. Easy to rotate to determine the relative humidity. 9. With English User's Manual that includes: a. Operation Guide b. Maintenance 10. Must be branded		
LOT 14	Soil pH, Moisture, Sunlight Meter	**Functional Specifications:** Used to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time **Performance Specifications:** Should be able to measure pH, moisture content of soil and measure sunlight available to the soil sample in real time **Design Specifications:** 1. Used to measure the Soil Moisture, pH and illumination distribution of soil 2. Compose of two electrodes, 7 inches -10 inches 3. pH/ Moisture/ Sunlight Switch 4. pH Range: 3.5 - 8 pH (3.5-6.5 Acidic, 7-8 Alkaline) 5. Moisture Range: 1-10 (1-3 Dry; 4-6 Normal; and 7-10 Wet) 6. Light Range: 0 - 2000 lux (0-200 Low, 200-500 Low+, 500-1000 Normal, and 1000-2000 High) 7. With English User's Manual that includes Operation Guide a. Operation Guide b. Procedure on the proper use, handling and storage. c. Student Activity in using the item. 8. Must be branded		
LOT 14	Soil/Test Sieve	**Functional Specifications:** Used to separate and segragate different size soil particles **Performance Specifications:** Should be able to separate and segragate different size soil particles **Design Specifications:** 1. Diameter range: 8 inches - 10 inches 2. Mesh sizes: 5 Mesh, 10 mesh, 35 Mesh, 60 mesh, 120 mesh, and 230 mesh 3. Made of stainless steel metal 4. Set of Six Sieves 5. Includes lid and catch pan 6. Must be branded		
LOT 14	Telescope, Astronomical (Reflecting)	**Functional Specifications:** Used to enhance the appearance of details of celestial objects not visible to the unaided eye **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) 114mm Aperture (4.5 inches) 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 1.25 inches Eyepieces - 9mm and 25mm, multi coated h) Aluminum Tripod with Accessory Shelf 2. With English User's Manual that includes Operation Guide and Guide on how to assemble the model. 3. With Sticker at the bottom of the eyepiece stating the model, focal length, and diameter. 4. Includes training on use, maintenance, and storage 5. Must be branded		
LOT 14	Resistance Board	**Functional Specifications:** Used to investigate factors affecting resistance of a conductor **Performance Specifications:** Should be able to investigate factors affecting resistance of a conductor **Design Specifications:** 1. Board: dimensions-height: 30 mm , width: 120 mm length: 650 mm minimum, material plastic, channel type, thickness of material: 1/8 inches minimum free of warpage and other imperfection like flushes etc. 2. Board is mounted with the following wires: a) 2 - Nichrome wires of 2 different diameters: 0.25, 0.5 length: 600 mm b) 1 - Stainless steel wire diameter: 0.5 mm, length : 600 mm c) 1 - Copper wire diameter: 0.5 mm, length : 600 mm 3. Board should be marked by decimeter graduations that only span along entire wires' length 4. All wires should be rigidly fasten to the terminal posts, stainless steel		
LOT 14	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 for single use 2. Smooth, powder-free and beaded cuff 3. Material: Natural Latex Rubber 4. Size: #7.5 to #8.5 5. Thickness: 6 to 7 mil (0.15 - 0.18 mm) 6. Individually sealed pack pair of gloves 7. Quantity: 50 pairs/box		
LOT 14	Hand Lens, 5x	**Functional Specifications:** Used to produce a magnified image of an object. **Performance Specifications:** Must be able to magnify any image. **Design Specifications:** 1. Five times (5x) magnification power 2. Shall have a focal length not greater than 60 mm 3. Glass lens diameter: 50 mm (±1 mm) 4. Mounted in a circular metal frame with a cylindrical handle		

		5. No sharp edges 6. Safely packed in a box		
LOT 14	Pipette, Beral, 1 mL	**Functional Specifications:** Used to transfer/dispense liquid samples. **Performance Specifications:** Must be able to transfer/dispense liquid sample up to a volume of 1 mL. **Design Specifications:** 1. One-piece pipette, made from flexible soft non-toxic plastic that has a protuberance on top that serves as liquid retention chamber 2. Capacity: 1 mL in 0.25 mL grad interval 3. No rubber head 4. Total length range: 140 mm - 150 mm 5. With molded graduations		
LOT 14	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.Shape: Slightly curved fingers and forward-facing thumb correspond to the natural position of the hand (hand-shaped) , 2. Material: Super nitrile, reusable with the following dimensions: a)Length of gloves : 13 inches (330.2 mm) min b)Thickness: 0.38 -0.52 mm (min) 3. Color : Green 4. Size: 8 5. Interior finish : Flocklined interior(acid/solvent resistant) 6. Exterior finish : Smooth 7. Cuff type: Rolled beaded 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 resealable plastic bag 13. Comes with a brand		
LOT 14	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. Type: Class 2B cover afety goggle 2. Shape : 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 3. Material of lens : Polycarbonate lens 4. Sleek wrap-around styling for a 180 degree, clear field of visionwith 180° panoramic view 5. Color: Clear 6. Lens type : Anti-splash, anti-fog treated/anti-scratch coating 7. 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 8. With wrap around elasticized adjustable headband integrated with goggle frame to prevent slippage and holds the goggle more securely 9. With pivoting headband clips to adjust strap around hard hats or hearing protection 10. Peel-off goggle covers available to extend the life of the lens 11. Can be worn over most prescription eyewear (OTG compatible) 12. With firm comfortable seal around forehead, cheeks, nose and temples protects against chemicals, dust and grindings 13. 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 14. 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. 15. Individually packed in a transparent plastic bag 16. 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. 17. 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 18. Comes with a brand		
LOT 15	Flashlight with incandescent bulb	**Functional Specifications:** Used to provide illumination on the surface of a globe model **Performance Specifications:** Should be able to provide illumination on the surface of a globe model **Design Specifications:** 1. Powered by two (2) 1.5 volts size D dry cells; Capacity: 3 volts 2. 7" long minimum 3. slide switch 5. 35 feet beam distance		

		6. Body: high impact resin construction 7. Must be branded		
LOT 15	Lamp, Desk, Heavy Base	**Functional Specifications:** Used to provide heat and illumination on specimen under study **Performance Specifications:** Should be able to provide heat and illumination on specimen under study **Design Specifications:** 1. Heavy base, able to stand by itself 2. 35 inches length minimum 3. Easily adjustable to direct the light wherever you need it the most 4. With On and Off Switch 5. Power source: AC 220 volts line; included with 60-100 Watts Yellow Light bulb 6. Capacity: 100 watts 7. Preferable ungrounded plug (If the plug is grounded, an adapter should include in the item.) 8. With English User's Manual that includes Operation Guide 9. Should be branded		
LOT 15	Engine Model (Internal Combustion)	**Functional Specifications:** Used to simulate the operation of a 4-stroke cycle gasoline engine **Performance Specifications:** Should be able to simulate the operation of a 4-stroke cycle gasoline engine **Design Specifications:** 1. Cross section model of a 4-stroke cycle gasoline engine model, Size: 14 inches x 8 inchesx 7 inches minimum 2. Material: cast alloy construction, mounted on stable base 3. Internal sections in different colors to indicate air, fuel, and gas mixtures and exhaust gas contents. The carburator is shown in section. 4. The crankshaft can be rotated by hand wheel to simulate the operating cycle of 4-stroke cycle gasoline engine; with electrical contact for illuminating a a 3-volt lamp as spark plug to simulate ignition 5. Base with illustration and correct part names and show the following parts correctly: crank case, crank shaft, connecting rod, cylinder block, piston, intake valve, exhaust valve, push rod, spark plug, rocker arm, exhaust manifold, crank shaft gear, cam shaft gear, cam shaft, contact point, carburator, needle valve, float, throttle valve, intake manifold		
LOT 15	Mirror Set, acrylic	**Functional Specifications:** Used to demonstrate the formation of image by reflection of light **Performance Specifications:** Should be able to demonstrate the formation of image by reflection of light **Design Specifications:** 1. Set of 3 spherical mirrors, acrylic, secured in compartmentalized storage box with the following types and diameters: a) 1-plane mirror, 50 mm ±2 mm b) 1-concave mirror, 50 mm ±2 mm		

		c) 1-convex mirror, 50 mm ±2 mm 2. All mirrors free from sharp edges; 3. Should be clear and no sign of cloudiness 4. Should be able to reflect expected image/s of light source on screen.		
LOT 15	Strobe Light	**Functional Specifications:** Used to provide flashes of light so that position of fast moving objects can be recorded for example by a cemra **Performance Specifications:** Should be able to provide flashes of light so that position of fast moving objects can be recorded for example by a cemra **Design Specifications:** 1. Light source: High-output white LED (350 mA, 1W max.) 2. Variable frequency range: 2.5 Hz-250 Hz, steplessly variable 3. Light emission pulse width: stage switching, with fine tune control 4. Power source: Rechargeable alkaline/li-ion/li-po batteries with corresponding charger (both included in package) AND/OR unit operates directly from DC adapter (to be included) 5. Dimensions: 54 mm x 40 mm x 69 mm (minimum) 6. Weight: Approx. 171g (excluding batteries) 7. With RCA female terminal and male RCA plug with connectors for connecting to frequency meter 8. With English User's Manual that includes operation guide		
LOT 15	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. Triple nosepiece with 4x, 10x, 40x achromatic objectives and click stop 2. The camera sensor acts as 10x eyepiece lens, yielding 40x, 100x, and 400x powers 3. Four x (4x)digital zoom for magnification up to 1600x 4. LED Illumination type with adjustable wheels at base: 6 position, red, blue, green and 1, 3, 6 mm aperture 5. With top and bottom illumination location 6. 220V; 50/60 Hz power source 7. Battery options 4AA 8. Fully adjustable mechanical stage 3.5" x 3.5" with metal clips 9. Multiple on wheel stage diaphragm 10. CMOS 5 MP sensor eyepiece type 11. N.A. 65 Condenser 12. With 180° rotating LCD screen 13. Combination of smooth-finished metal and plastic parts 14. Has full color 3.5" TFT LCD screen with onboard software 15. Supports up to 32G Memory size 16. AC Plug (power) SD Card (32G max) Port(s) In 17. With TV output for display on large monitors for classroom or at the		

		laboratory 18. Dimensions: 6.7" x 5.5" x 13" (170mm x 140mm x 330mm) 19. Comes with training video in USB on the use, care, and maintenance 20. Warranty on Parts and Labor: 2 years 21. With User's Manual that shall provide the diagram of correct microscope parts; function of each part; operation guide; cleaning and troubleshooting instructions. 22. Manual details: a. Material: Inside pages: 70 lbs Book Paper; Cover: Foldcote Cal#15 b. Size: 6.5 inches x 8.5 inches Fold 13 inches x 8.5 inches Spread c. Binding: Saddle Staple d. Font type: Arial and Font size (min.): 10 e. Written in AMERICAN ENGLISH WITH CORRECT GRAMMAR, SPELLING AND PUNCTUATION. f. Pictures used shall be in full color 23. Accessories included: a. 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		
LOT 15	Centrifuge	**Functional Specifications:** Used as one of the separation techniques for mixtures and compounds when the density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens **Performance Specifications:** Must be able to separate mixtures and compounds based on density difference between the particles and liquid is great, the particles are large, and the liquid viscosity is low. Separates blood at 3300 rpm and can be slowed down to separate other fluids at lower G forces such as urine specimens **Design Specifications:** 1. Type: Fixed speed 2. Shape: Irregular 3. Material: Non-toxic plastic with the following dimensions: a) Height : 10.5 inches (min) b)Width: 13 inches (min) c) Depth: 13 inches (min) 4. Color finish: Black 5. With Angled rotor, 8-Place Centrifuge with Timer 6. With Lid safety shut-off switch 7. Holds 3 mL to 15 mL size tubes 8. With 12 volt DC maintenance-free motor 9. Nominal speed: 900 -3300 RPM (±5 %) 10. Nominal RCF : 1,327 g 12. Maximum volume : 120 mL 13. Fuse: 3 amp/ 250 volts 14. Maximum speed : 3,500 rpm with variable speed control. (blood, urine, etc)		

		15.Clear view port in lid for using tachometer 15. Suction-cupped feet to prevent slipping 16. With Auto-off 30-minute timer with bell 17. With power cord 18. Power supply : 110/220 v , with auto-switching power adapter 19. Certification: CE, UL, cUL approved 20. Includes the folowing:: a). Eight-place tube rotor b) Eight 15ml tube sleeves c) Eight 13 x 75 mm tube sleeve inserts d) Eight 15mL round bottom plastic centrifuge tubes with screw cap with white or black print graduations e) Eight 13 x 75mm round bottom plastic centrifuge tubes with screw cap 21. Placed in bubble wrap, enclosed in polystyrene and individually packed in sturdy box 22. With Operations Manual and Assembly Guide in English 23 With sample activity sheets in English 24. For numbers #22 to 23; technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeled 24. Comes with training on the installation,use, care, proper storage and repair and maintenance 24. Comes with a brand		
LOT 15	Electrical Conductivity (Conductivity of Solutions) Apparatus	**Functional Specifications:** Usedas a visual demonstration of the electrical conductivity of various liquids/solutions. **Performance Specifications:** Must be used as a visual demonstration of the electrical conductivity of various liquids/solutions whether it is a a) electrolyte - conducts electricity or b) non-electrolyte - does not conduct electricity . **Design Specifications:** 1. Shape : Cylindrical jar with flat bottom 2. Material of jar: Borosilicate, clear, transparent, and bubble free glass containing the liquid to be tested, with the following dimensions:		

		a) Diameter: 72-75 mm b) Height: 75-80 mm 3. Capacity of jar/container: 200 mL 4. It comes with a jar cover whcih perfectly fits the glass jar a) Material of jar cover: Polyvinyl carbonate (PVC) b) Color of jar cover: Green 5.It consists of an electric lamp (3.0 V) in series with open electrodes 6. It comes with a molded lamp socket a) Material of a molded lamp socket: Plastic 7. It comes with one (1) pc bulb a) Type of bulb: Miniature type b) Voltage: 3.0 volts c) Number of extra light bulbs : Ten (10) pc 8.With two (2) binding posts for connection to two wire connectors 9. With two (2) electrodes, which fit inside the glass jar, internally connected to the lamp circuit, namely: a) a copper wire (anode) and b) a carbon rod (cathode) 10. Length of electrodes : 60 mm 11. First power source: 2 AA batteries 12. With 1 pc battery holder 13. Comes with second power source: 220 V -240 V AC input)/ (0-12 V) DC output, comes with switch selector 14. Comes with two (2) connecting wires (1 red, 1 black) with alligator clips (1 red, 1 black) soldered on one end of the wire a) Length of wire: 12 " b) Type of wire: Stranded c) Gauge number : 20 15. Comes complete with a padded storage box to help prevent glass breakage. 16. Must be free from breakage, cracks, chipped rims and other defects 17. With Operations Manual and Assembly Guide in English 18. With sample activity guide/sheets/Teacher's Manual in English 19. For For numbers #17 to 18; the technical specifications a-e must be followed: a) For Contents List of materials, In Table form b) for User's Manual, 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 laminatedkeycard 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specific part being		

		labeled 19.mes with a brand		
LOT 15	Laboratory Hot Plate with magnetic stirrer	**Functional Specifications:** a)Used to heat samples, glasswares and its contents, solutions, and substances uniformly with constant stirring , or b) boiling of water c) to sterilize glasswares and other materials uniformly, d) dissolving buffers and reagents with constant stirring e) preparing media, f) concentrating samples and g) to prepare chemicals used in scientific research. **Performance Specifications:** Must be able to a) heat samples, glasswares and its contents, solutions, and substances, with constant stirring b) boiling of water c) to sterilize glasswares and other materials uniformly d) dissolving buffers and reagents with constant striring e) preparing media, f) concentrating samples and g) to prepare chemicals used in scientific research h) Agitates the liquid to speed up the reaction and mixes components (solid and liquid to get homogeneous mixtures **Design Specifications:** 1.Type : Digital 2. Top plate Material : Ceramic coated aluminum plate (chemical /acid resistant with the following dimensions: a) Length : 180 mm (minimum) b) Width : 180 mm (minimum) 3. Color of top plate : White 4. Material of body : Powder coated cast aluminum with the following dimensions: Length : 206 mm Width : 307 mm Height : 99 mm 5. Color of body: Midnight blue 6. Maximum Operating Temp.: 380 ^{O}C 7. Temperature accuracy : ± 0.3 °C at set temperature 8. Stirring capacity: 20 Liters 9. Motor rating: 9/4 W 10. Speed: 80-1500 rpm 11. Control resolutio: 5 rpm 12. Temperature range and accuracy : Max 380 °C 13. Temperature resolution: 0.1 °C for display: ; 0.5 °C control 14. 14. Temperature uniformity: specially designed heating module temperature difference 10 % less 15. Heating power consumption: 600 W 16. With digital LCD with backlight display 17. With digital feedback controller with joggle shuttle switch(Turn + Push) 18. With stirring bar: 3 cm bar included, usable: Up to 5 cm bar 19. With over temperature protection 20. With power cord, AC AdapterQuick and easy adjustment knob		

		21. Control: Quick and easy adjustment knob 22. With safety LEDs to indicate when heating function has been activated 23. Power: 220-240 V AC, 50/60 Hz, 800 W 24. With built-in support rod mount, thumbscrew, accommodates rods up to 13 mm in dia. 25. Stand rod: Stainless steel, Φ= 12 mm Length: Φ450mm 26. With Thumb screw 27. With external direct contact temperature probe with the following dimensions: a) Diameter: 4 mm b) Length: 250 mm c)Cable: 190 mm 28. With plug for temperature probeWith quick adjustment knob and LED indicator 29.With holder/ clamp/clip for temperature probe . Stirring speed up to 1500 rpm 30. Includes English User's Manual which consists of the Operating Manual 31.With Activity Sheets/Teacher's Manual in English 32.For numbers #30 to 31; the technical specifications (a-e) must be followed: a) For Contents/ List of materials, In Table form b) for User's Manual, 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 Assembly Guides 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) Margins on all sides with 2 point width border line v) Line with arrow head of 1.25 point with width shall point to the specifi part being labeledComes with training on the installation, use, care, maintenance and storage 32. Comes with a brand		
LOT 15	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. Can be set in 12-hour setting; 6. The item shall be free from toxic materials;		

		7. Ready to use and comes with a new battery.		
LOT 15	Graphing Calculator, 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 established in providing quality products for 50 years and up. 13. Includes training on the use and maintenance.		
LOT 15	Scientific Calculator	**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 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 established in providing quality products for 50 years and up.		
LOT 15	Stopwatch, digital	**Functional Specifications:** Used to show time elapse in hours, minutes, seconds. **Performance Specifications:** Must be able to show time elapsed in hours, minutes and seconds. **Design Specifications:** 1. Digital type, water-resistant (5-bar) 2. Start, stop, and re-set operations 3. Display Number: 4mm W x 10mm H 4. Measure Unit: 1/100th of a second 5. Working Range: up to 23hr 59min 59sec 6. Individually and properly packed in a box. 7. Instruction Manual in English 8. Approximate W x H x T: 60mm x 67mm x 20mm 9. Ready to use and comes with extra batteries.		
LOT 16	Air Blower	**Functional Specifications:** Used to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle. **Performance Specifications:** Should be able to blow air into light balls to keep them airborne to demonstrate Bernoulli's principle **Design Specifications:** 1. Electric air blower with variable speed control, volute type, 400 W motor, 220 to 240 VAC 60 Hz power supply, 0 to 12000 RPM 2. Volute diameter: 150 mm minimum Exhaust diameter: 35 mm minimum Exhaust tangential length: 110 mm minimum Attachment nozzle: soft rubber, to fit diameter of exhaust tapered to 22 mm, length: 165 mm 3. With English User's Manual that includes operation guide 4. With transport box		
LOT 16	Archimedes Principle Set	**Functional Specifications:** Used to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent lost of weight of the immersed object is equal to the weight of the displaced liquid **Performance Specifications:** Should be able to visually demonstrate that objects immersed in a liquid like water displaces volume of liquid equal to the volume of the immersed object and that the apparent lost of weight of the immersed object is equal to the weight of the displaced liquid **Design Specifications:** 1. The item consists of: a) Bucket and Plummet: Transparent		

		bucket with handle stainless steel/brass, plummet white color with hook; Diameter of Plummet: 54.99 mm to 55.00 mm; Inside diameter of bucket: 55.01 mm to 55.02 mm Height of Plummet: 53 mm ± 0.01 mm, Inside height of bucket: 53 mm ± 0.01 mm Volume of Cavity in Bucket: to fit plummet precisely Both are made of ABS plastic Accurately marked divisions on plummet and bucket representing different volume levels b) Overflow Can and Catch Bucket: Overflow can: 3 inches diameter x 5 inches high, seamless, with spout, made of plastic Catch bucket: 3 inches diameter x 3 inches high, made of plastic c) Large demonstration 2N (dynamometer)/0.1 read, spring type linear, at least 3 inches width x 10 inches length 2. Fixations and supports should be stable during activity 3. With English Manual that includes User's Guide 4. Contained in a transport box with styropor		
LOT 16	Basic Electronics Kit	**Functional Specifications:** Used to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts **Performance Specifications:** Should be able to perform activities on resistors, capacitance, ohmic and non-ohmic resistance and other basic electronics concepts **Design Specifications:** 1. Each component is mounted on individual board with color coded binding post terminals depending on mounted components (see No. 4 for color code of binding post terminals) Min. dimensions: 60 mm width x 80 mm length x 5 mm height 2. Component name and symbol should be permanent (embossed or etched) and painted black on conspicuous location on board. 3. With external binding post connectors that can accommodate 4 mm banana plugs, color coded encapsulation: black for negative, red for positive, yellow for non-polar terminals 4. The Kit shoiuld contain the following: 5-Resistors: (2-100 Ω, 2 watts; 1-1000 Ω, 2 watts; 1-10 kΩ, 2 watts; 1-100 kΩ, 2 watts),binding post terminals: all yellow 2-Rectifier Diodes, IN 4002, binding post terminals: black for negative, red for positive1-LED, large size, binding post terminals: black for negative, red for positive1-NPN transistor, 2N3440 or 2N3439 or equivalent, binding post terminals: black for negative, red for positive2-Capacitor 1000 µF, 25 V, binding post terminals: black for negative, red for positive1-Variable Resistor, large, rotary, carbon,5 kΩ mono, binding post terminals: all yellow		

		5. Items placed in storage box, 1 box per set		
LOT 16	Beaker, Plastic 500 mL	**Functional Specifications:** Used to contain liquids and allow liquids to flow thru spout when overfilled **Performance Specifications:** Should be able to contain liquids and allow liquids to flow thru spout when overfilled **Design Specifications:** 1. Material: polypropylene plastic 2. Capacity: 500 mL Increments: 10 mL 3. Height: 12 cm 4. Diameter: 8 cm 5. Must have container box. 6. Must be free from any toxic material.		
LOT 16	DC Ammeter	**Functional Specifications:** Used to measure DC current in electrical circuit **Performance Specifications:** Should be able to measure DC current in an electrical circuit **Design Specifications:** 1. Analog, dual range selectable:-0.2 - 0 - +0.6A/0.02 read;-1.0 -0- +3.0A/0.1 read, ± 2.5% full scale, analog 2. Dial plate dimensions: 95 mm width x 85 mm height, minimum 3. Overall encasement dimensions minimum: 95 mm width x 130 mm depth x 95 mm height encasement material: plastic, any color 4. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal) 5. External zero-adjust calibration 6. With English User's Manual that includes operation guide		
LOT 16	DC String Vibrator, string included	**Functional Specifications:** Used to demostrate standing waves on a string **Performance Specifications:** Should be able to demostrate standing waves on a string **Design Specifications:** 1. Utilizes an offset-weighted shaft on a DC motor 2. Input voltage (0 volts -6 volts DC) 3. Vibration Frequency: controled by stepless attenuator 4. With steel mounting platform, binding posts for external wire connection 5. Includes twisted polyester cotton string, 3 mm diameter (Size #72), 5 meters 6. With Operation Manual in English		
LOT 16	DC Voltmeter	**Functional Specifications:** Used to measure DC voltage across components in an electrical circuit **Performance Specifications:** Must be able to measure DC voltage across components in an electrical circuit **Design Specifications:** 1. Analog, dual range selectable -1V -0- +3V/0.1 read-5 -0- +15V/ 1.0 read±2.5% full scale, analog 2. Dial plate dimensions: 95 mm width x 85 mm height, minimum		

		3. Overall encasement dimensions minimum: 95 mm width x 130 mm depth x 95 mm height encasement material: plastic, any color 4. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal 5. External zero-adjust calibration 6. With English User's Manual that includes operation guide		
LOT 16	Digital Geiger-Muller Counter: MAIN UNIT	**Functional Specifications:** is used to measure alpha, beta, and gamma radiation **Performance Specifications:** should be able to measure alpha, beta, and gamma radiation **Design Specifications:** 1. Main unit: Digital Geiger-Muller Counter; measures alpha, beta, gamma radiation; 2. should be calibrated and certified by Phillipine Nuclear Research Institute (PNRI) 3. Unit of Measurement: mR/hr, ?Sv/hr, CPM, digital readout 4. Range: 0.001 mR/hr to 1000 mR/hr 5. With provision for connecting to desktop/laptop PC, comes with software and appropriate connectors 6. Approx. dimensions: minimum 4 x 2 x 1 inches 7. Runs on dual power supply: dry cell and external power, comes withdry cell and adapter for external DC input 8. Branded; with English User's Manual that includes operation guide9. Includes training on use and maintenance and storage		
LOT 16	Digital Geiger-Muller Counter: Accessories-SET OF LEGAL RADIOISOTOPE SAMPLES	**Functional Specifications:** is used to provide sources of alpha, beta, and gamma radiations **Performance Specifications:** should be able to provide sources of alpha, beta, and gamma radiations **Design Specifications:** 1. Set of sample legal radioactive sources, each is enclosed in a permanently shield disk: 3 mm thick x 25 mm dia. 2. Each disk is identified by radio nuclide, amount of activity in microcuries, half life and type of radiation The words "Caution - Radioactive Material" appear on the label of each source1-alpha source: Polonium 2101-beta source: Strontium 901-gamma source: Cobalt 60All 3 radioisotope samples stored in a safe box3. Should be certified by Philippine Nuclear Research Institute (PNRI)4. Supplier should be licensed by Philippine Nuclear Research Institute (PNRI) to sell radioactive materials 5. Branded; with English User's Manual that includes operation guide6. Includes training on use and safe storage		
LOT 16	Dry Cell Holder (size D)	**Functional Specifications:** Used to securely mount size D dry cell in place **Performance Specifications:** Should be		

		able to securely mount size D dry cell in place **Design Specifications:** 1. Single Holder for size D dry cell, snap-on type; 2. With built-in nickel plated brass plate connectors; 3. Holders can be interconnected in series or parallel; 4. Plastic body, should be sturdy, thickness: 2 mm minimum; 5. Crack resistant when dropped from 1-meter height, mounted with dry cell; 6. Any color; 7. Must have container box.		
LOT 16	Dry Cell, 1.5 volts, size D	**Functional Specifications:** Used to provide 1.5 volts DC power source for a basic electrical circuit **Performance Specifications:** Should be able to provide 1.5 volts DC power source for a basic electrical circuit **Design Specifications:** 1. industry standard size D 1.5 volt dry cell		
LOT 16	Dry Cell, 9 volts	**Functional Specifications:** Used to provide 9 volts DC power to digital multimeter **Performance Specifications:** Should be able to provide 9 volts DC power to digital multi meter **Design Specifications:** 1. industry standard 9 volts dry cell		
LOT 16	Fuse Holder w/ Fuse	**Functional Specifications:** Used to demonstrate the function of fuses **Performance Specifications:** Should be able to demonstrate the function of fuses **Design Specifications:** 1. Fuse: 0.3 amperes, maximum, slow-blow, glass-tube type, Rating should be engrave/etched on metal cap 2. Fuse detachable from holder, holder brass nickel plated, holder mounted on black plastic base w/ dimensions: 12 mm x 60 mm x 95 mm minimum, thickness of base material: 2 mm minimum 3. Binding post terminals mounted on base, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation 4. Connecting wires properly soldered to eyelet of binding posts 5. Each set comes with at least 50 spare fuses		
LOT 16	Galvanometer	**Functional Specifications:** Used to measure small electrical current **Performance Specifications:** Should be able to measure small electrical current **Design Specifications:** 1. Analog, general purpose galvanometer; 2. -500 to +500 μA full scale/10 μA read, full scale accuracy of ± 2.5%; 3. Dial plate dimensions: 95 mm width x 85 mm height, minimum; 4. Overall encasement dimensions minimum: 95 mm width x 130 mm depth x 95 mm height encasement material:		

		plastic, any color; 5. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, color coded plastic insulation (black for negative or common terminal, red for positive terminal); 6. External zero-adjust calibration; 7. With English User's Manual that includes operation guide; and 8. With molded styropor as part of its packaging9. fuse protected		
LOT 16	Iron Core Rod, non-corrugated	**Functional Specifications:** Used to perform activities on electromagnet **Performance Specifications:** Should be able to perform activities on electromagnet **Design Specifications:** 1. Iron rod 12 mm ± 1 mm dia x 100 ±1 mm long		
LOT 16	Magnet Wire	**Functional Specifications:** Used to perform activities on electromagnet **Performance Specifications:** Should be able to perform activities on electromagnet **Design Specifications:** 1 spool magnet wire (insulation coated) #20, 100 g. spool		
LOT 16	Miniature Light Bulb	**Functional Specifications:** Used to demonstrate the conversion of electrical energy to light **Performance Specifications:** Should be able to to demonstrate the conversion of electrical energy to light **Design Specifications:** 1. Miniature, incandescent, screw type base 2. Bulb rating: 2.2 V to 2.5 V, 0.3 A, handling current; engraved on base of bulb 3. Operational Specs: a) should fit with bulb socket in bulb holder assembly b) should light with one fresh dry cell connected (1.5 volts) c) will not burn out when connected to 2 fresh dry cells in series (3 volts supply for 5 minutes)		
LOT 16	Miniature Light Bulb Holder	**Functional Specifications:** Used to securely mount light bulb in place **Performance Specifications:** Should be able to securely mount light bulb in place **Design Specifications:** 1. Socket to match the miniature incandescent light bulb, socket in plastic housing; 2. Socket housing is mounted on black, plastic base: Base dimensions minimum : 12 mm x 60 mm x 95 mm, Material thickness: 2 mm minimum 3. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic insulation; 4. Connecting wires properly soldered to eyelet of binding posts.		
LOT 16	Motor-Generator Model Experiment Set	**Functional Specifications:** Used to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function		

		Performance Specifications: Should be able to demonstrate the conversion of electrical energy to mechanical energy when set to motor function and vice versa when set to generator function **Design Specifications:** 1. DC motor mode, runs on 6 volts -12 volt 2. Can function as generator when the armature is rotated; AC-DC generator output is determined by commutator configuration; 3. Selectable split-ring and slip-ring commutator that enables AC-DC output w/o changing the direction of rotation of the rotor; 4. Binding posts, for external connections, labeled with "motor input: 6 V-12 VDC" and "generator output", unit should be should be free of indicator bulbs; 5. Rotor should be concentric with the stator to produce equal air gap; 6. Stator is activated by a permanent magnet.Stator assembly should have one color except blue and red; Example all yellow, all white or all black stator assembly. 7. Includes spare: 4 pcs belt, 1 set magnet; 8. Armature diameter: 68 mm minimum, Armature shaft diameter: Ø 8 mm minimum, w/ rigid mounting; 9. Drive pulley, plastic, diameter: 168 mm minimum, driven pulley diameter: 26 mm minimum, steel nickel plated; 10. Base wooden board minimum dimensions: 200 mm x 300 mm x 19 mm		
LOT 16	Multimeter, digital	**Functional Specifications:** Used to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency **Performance Specifications:** Should be able to provide digital readouts of measurements of AC/DC currents and voltages, resistance, capacitance, frequency **Design Specifications:** Measurement Coverage, or smaller values in lower range and larger values in upper range:: 1. DC Voltage: 60mV , 6V , 60V, 600V, 1000V ±0.7%+2. 2. AC Voltage: 600mV, 6V, 60V, 600V, 750V ±0.8%+3. 3. DC Current: 600µA , 6000µA, 60mA, 600mA ±1.2%+3 / 6A , 10A ±2.0%+10. 4. AC Current: 600µA , 6000µA , 60mA, 600mA ±1.5%+3 / 6A, 10A ±3.0%+10. 5. Resistance: 600Ω , 6kΩ, 60kΩ, 600kΩ , 6MΩ , 60MΩ ±1.2%+5. 6. Capacitance: 10nF, 100nF , 1000nF, 10µF, 100µF, 1000µF , 10mF, 100mF±3.0%+3. 7. Frequency : 10Hz , 100Hz, 1000Hz, 10kHz, 100kHz, 1000kHz, 10MHz ±1.0%+5. 8. Duty Cycle :0.1%-99.99% ±3.0%+2. 9. Temperature: -20~1000 Centigrade degree / -4~1832 F 10. Display: 6000 counts 11. Auto range 12. USB Interface function. The measured		

		data stored in the instrument can be uploaded to computer for display, record and analysis Comes with: 1*Pair Test Leads, 1*English Operating Manual. 1*Temperature Probe, 1*USB Data Cable 11. Branded		
LOT 16	Pair of Bar Magnets	**Functional Specifications:** Used to demonstrate that some things can make objects move and describe forces exerted by magnets **Performance Specifications:** Should be able to demonstrate that some things can make objects move and describe forces exerted by magnets **Design Specifications:** Pair of Bar Magnets: 1. Minimum dimensions of each: 150 mm X 12 mm X 8 mm; 2. Magnet strength: can suspend loads at least 2 times its weight 3. Color Code: north pole of the magnet should be colored red and the south pole colored blue		
LOT 16	Ring and Ball Apparatus	**Functional Specifications:** Used to demonstrate thermal expansion (and contraction) of a metal) **Performance Specifications:** Should be able to demonstrate thermal expansion (and contraction) of a metal) **Design Specifications:** 1. The ring and ball set demonstrates thermal expansion. 2. Comprising of a captive brass ball secured to a mounted brass ring by a chain. 3. Diameter of Ball : 25.00mm +/- 0.01mm, smooth surface 4. Inside Diameter of Ring : 25.04mm +/- 0.01m, smooth surface 5. Outside Diameter of Ring: minimum of 38mm 6. Thickness of Ring: 6 mm minimum 7. Diameter of Brass Stem: 5mm 8. Handle of brass ring made of wood. 9. Chain is made of stainless steel with a 3-turn stainless wire ring to keep the ball in the chain specially during heating.		
LOT 16	Ripple Tank Set	**Functional Specifications:** Used to demonstrate properties of transverse waves **Performance Specifications:** Should be able demonstrate properties of transverse waves **Design Specifications:** 1. Tank: 55 cm x 55 cm minimum, with foam beaches perimeter to damp reflections, with 4 detachable legs with leveling screws, height of legs: 50 cm, minimum 2. Glass bottom: 40 cm x 40 cm minimum 3. Should include the following accessories: a) 1-rippler bar with electronic frequency controller (digital) b) 1-hand rippler bar c) 2-spherical dippers, removable d) 4-parafin blocks e) 1-glass plate, 20 cm x 28 cm ±2 cm		

		f) 1-parabolic reflector 1-plastic viewing screen, white, 60 cm x 60 cm minimum 4. Light Source: a) halogen lamp 6 volts to 12 volts b) with electronic controlled strobe to synchronize with frequency controller c) detachable and adjustable mounting unto the tank d) black shielded with ventilation 5. With frequency display unit that indicates synchronizing frequency between the controller and the strobe 6. With English User's Manual that includes Assembly and Operation Guide 7. Branded		
LOT 16	Set of Connectors (# 18 copper, AWG stranded): Black, 350mm long with alligator clip on one end and banana plug on the other end	**Functional Specifications:** Used to effectively interconnect components in an electrical circuit **Performance Specifications:** Should be able to effectively interconnect components in an electrical circuit **Design Specifications:** # 18 copper, AWG stranded, 350 mm length minimum, with insulated brass alligator clip, 18 mm - 20 mm jaw length, on one end and 4 mm brass banana plug, on the other end; all black		
LOT 16	Set of Connectors (# 18 copper, AWG stranded): Red, 350mm long with alligator clip on one end and banana plug on the other end	**Functional Specifications:** Used to effectively interconnect components in an electrical circuit **Performance Specifications:** Should be able to effectively interconnect components in an electrical circuit **Design Specifications:** # 18 copper, AWG stranded, 350 mm length minimum, with insulated brass alligator clip, 18 mm - 20 mm jaw length, on one end and 4 mm brass banana plug, on the other end, all red		
LOT 16	Set of Connectors (# 18 copper, AWG stranded): Yellow, 350mm long with alligator clip on one end and banana plug on the other end	**Functional Specifications:** Used to effectively interconnect components in an electrical circuit **Performance Specifications:** Should be able to effectively interconnect components in an electrical circuit **Design Specifications:** # 18 copper, AWG stranded, 350 mm length minimum, with insulated brass alligator clip, 18 mm - 20 mm jaw length, on one end and 4 mm brass banana plug, on the other end, all yellow		
LOT 16	Sound Resonance Set: Loud Speaker	**Functional Specifications:** Used to provide continuous sound tone of certain frequency **Performance Specifications:** Should be able to provide continuous sound tone of certain frequency **Design Specifications:** 1. For connection to the sound signal generator, 2 inches cone diameter 2. 1 watt, all frequency or low range, 4 Ohms to 8 Ohms impedance 3. No enclosure, mounted on an open board with stand to match height of resonance tube		

		Height of loudspeaker with stand: center of loudspeaker 52 mm height from table surface to match with height of resonance tube (please see resonance tube specifications) 4. Binding post terminal connectors conveniently located, should not block opening of resonance tube during activity, color coded encapsulation red for positive, black for negative		
LOT 16	Sound Resonance Set: Resonance Tube set	**Functional Specifications:** Used to vary the length of air column to produce resonance of sound coming out from the loudspeaker **Performance Specifications:** Should be able to vary the length of air column to produce resonance of sound coming out from the loudspeaker **Design Specifications:** 1. Telescoping tubes used to find the wavelength in air for tuning forks, and other sound sources like loudspeaker 2. Plastic stopper fixed on one end of inner tube 3. Outer tube: OD: 63 mm -0.5 mm, +2 mm diameter, 1030 mm long: minimum with detachable rubber plug on free end for safe transport of inner-outer tube assembly Inner tube: OD: 50 mm, 1100 mm long, Permanent graduation with mm scale at 1 mm division to indicate length of air column as the inner tube is pushed or pulled along the outer tube; print should resist rubbing, no sign of fade after 100 slides; inner tube with good quality air sealing material (felt cloth) 4. With rigid and stable stand to make effective height of outer tube align with loudspeaker cone (please see loudspeaker specifications) 5. Height including stand: center of outer tube elevated by 52 mm from the surface) 6. With English User's Manual that includes Operation Guide		
LOT 16	Sound Resonance Set: Tone Generator	**Functional Specifications:** Used to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone **Performance Specifications:** Should be able to control the frequency, loudness and quality of electrical signal fed to the loudspeaker to produce sound tone **Design Specifications:** 1. Should be able to generate 20 Hz-20 kHz frequency sine waves; with digital display readout of frequency setting 2. Frequency setting on unit should match to measured output both electrical and acoustical (from loudspeaker) up to 1% accuracy 3. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics) 4. Maximum sound output from connected loudspeaker: 60 ±5 dB at 1kHz measured at 8-12 cm distance between loudspeaker and sound measuring instrument 5. With terminals for external connection		

		to loudspeaker and to oscilloscope 6. Power supply: 4.5 volts -12 volts DC internal by way of Size D, AA, AAA, or 9 volt dry cells or external by way of appropriate adapter or by way of output from low voltage (0 volts to +12 volts) variable power supply 7. With English User's Manual that includes Operation Guide		
LOT 16	Switch, Knife type, Single Pole Single Throw	**Functional Specifications:** Used to open and close an electrical circuit **Performance Specifications:** Should be able to open and close an electrical circuit **Design Specifications:** 1. Single pole Single Throw Knife type switch Knife dimensions minimum: 0.8 mm x 8 mm x 55 mm, nickel plated brass Plastic handle dimensions minimum: 9 mm x 9 mm x 23 mm 2. Contact plates for knife dimensions minimum: 8 mm x 20 mm, nickel plated brass, thickness of material 0.5 mm minimum 3. Knife switch-contact plates assembly mounted on black plastic base: 12 mm x 60 mm x 95 mm minimum, thickness of base: 2 mm minimum, 4. Binding post terminals, threaded, can accommodate 4 mm banana plug, brass material, with yellow plastic encapsulation 5. Internal connectors properly soldered to eyelet of binding posts;6. Switch fixations should survive 100 continuous on-off operation cycles, without signs of wear and tear		
LOT 16	Tuning Fork Set	**Functional Specifications:** Used to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale **Performance Specifications:** Should be able to produce sound tones of fixed frequencies that correspond to the frequencies of the first octave in the diatonic scale **Design Specifications:** 1. 8 piece tuning forks: C=256 Hz, D=288 Hz, E=320 Hz, F=341 Hz, G=384 Hz, A=426 Hz, B=480 Hz, C=512 Hz 2. Aluminum alloy, non-magnetic, handle: 4.5 cm length, approx. 3. Frequency and scale letter stamped on each fork 4. Packed in molded tray for storage convenience 5. With rubber mallet 6. Measured sound output frequency should match with frequency info stamped on fork Frequency measurements should be within 1% of stamped values on each tuning fork 7. Should be able to produce pure tones free from unwanted signals (smooth sine waves without harmonics)		

STATEMENT OF COMPLIANCE

I hereby commit to provide the above specified requirements in compliance with the Technical Specification for the Project: ***Mass Production and Supply of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 & Grade 4 to 6, Public Junior High School for Grades 7 to 10 and Public Senior High Schools for Grades 11 to 12 (Core and Stem).***

_____

Name and Signature
of Authorized Representative

Section VIII. Checklist of Technical and Financial Documents

Checklist of Technical and Financial Documents

I. TECHNICAL COMPONENT ENVELOPE

Class "A" Documents

Legal Documents

☐ (a) Valid PhilGEPS Registration Certificate (Platinum Membership) (all pages);
or

☐ (b) Registration certificate from Securities and Exchange Commission (SEC), Department of Trade and Industry (DTI) for sole proprietorship, or Cooperative Development Authority (CDA) for cooperatives or its equivalent document,
and

☐ (c) Mayor's or Business permit issued by the city or municipality where the principal place of business of the prospective bidder is located, or the equivalent document for Exclusive Economic Zones or Areas;
and

☐ (d) Tax clearance per E.O. No. 398, s. 2005, as finally reviewed and approved by the Bureau of Internal Revenue (BIR).

Technical Documents

☐ (f) Statement of the prospective bidder of all its ongoing government and private contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid; **and**

☐ (g) Statement of the bidder's Single Largest Completed Contract (SLCC) similar to the contract to be bid, except under conditions provided for in Sections 23.4.1.3 and 23.4.2.4 of the 2016 revised IRR of RA No. 9184, within the relevant period as provided in the Bidding Documents; **and**

☐ (h) Original copy of Bid Security. If in the form of a Surety Bond, submit also a certification issued by the Insurance Commission;
or
Original copy of Notarized Bid Securing Declaration; **and**

☐ (i) Conformity with the Technical Specifications, which may include production/delivery schedule, manpower requirements, and/or after-sales/parts, if applicable; **and**

☐ (j) Original duly signed Omnibus Sworn Statement (OSS);
and if applicable, Original Notarized Secretary's Certificate in case of a corporation, partnership, or cooperative; or Original Special Power of Attorney of all members of the joint venture giving full power and authority to its officer to sign the OSS and do acts to represent the Bidder.

Financial Documents

☐ (k) The Supplier's audited financial statements, showing, among others, the Supplier's total and current assets and liabilities, stamped "received" by the BIR or its duly accredited and authorized institutions, for the preceding calendar year which should not be earlier than two (2) years from the date of bid submission; **and**

☐ (l) The prospective bidder's computation of Net Financial Contracting Capacity (NFCC);

or

A committed Line of Credit from a Universal or Commercial Bank in lieu of its NFCC computation.

Class "B" Documents

☐ (m) If applicable, a duly signed joint venture agreement (JVA) in case the joint venture is already in existence;

or

duly notarized statements from all the potential joint venture partners stating that they will enter into and abide by the provisions of the JVA in the instance that the bid is successful.

Other documentary requirements under RA No. 9184 (as applicable)

☐ (n) *[For foreign bidders claiming by reason of their country's extension of reciprocal rights to Filipinos]* Certification from the relevant government office of their country stating that Filipinos are allowed to participate in government procurement activities for the same item or product.

☐ (o) Certification from the DTI if the Bidder claims preference as a Domestic Bidder or Domestic Entity.

25 FINANCIAL COMPONENT ENVELOPE

☐ (a) Original of duly signed and accomplished Financial Bid Form;

and

☐ (b) Original of duly signed and accomplished Price Schedule(s).

List of all Ongoing Government & Private Contracts including contracts awarded *but* not yet started

Business Name : _____

Business Address : _____

Name of Contract/ Project Cost	*Owner's Name* a. Address b. Telephone Nos.	Nature of Work	*Bidder's Role*		*Date Awarded* a. Date Started b. Date of Completion	% of Accomplishment		*Value of Outstanding Works / Undelivered Portion*
			Description	%		*Planned*	*Actual*	
Government								
Private								

Note : (In case of no ongoing contract, the bidder shall submit this duly signed form and indicate ***"No ongoing contracts" or "None" or "Not Applicable (N/A)"*** *under the Column for Name of Contract (first column from left)*

Submitted by: _____

Printed Name and Signature of Authorized Representative

Designation :_____

Date : _____

Statement Identifying the Single Largest Completed Contract

Business Name :_____

Business Address :_____

Name of Contract	a. Owner's Name b. Address c. Telephone Nos.	Nature of Work	Bidder's Role		a. Amount at Award b. Amount at Completion c. Duration	a. Date Awarded b.Contract Effectivity c. Date Completed d.Contract Performance certified by End User
			Description	%		
Government						
Private						

Note: The bidder shall be able to support this statement with:

Duly signed Contracts/Purchase Orders (POs)/ Agreements/Memoranda of Agreement (MOA)/Notices of Award (NOA)/Job Orders or Notices to Proceed (NTP) with the corresponding

Certificates of Completion of Delivery (CCDs)/ Certificates of Final Acceptance (CFAs)/duly signed Delivery Receipts (DRs), or duly accomplished Inspection and Acceptance Reports (IARs)

Submitted by :_____

(Printed Name and Signature)

Designation :_____

Date :_____

Joint Venture Agreement Form

KNOW ALL MEN BY THESE PRESENTS:

That this JOINT VENTURE AGREEMENT is entered into By and Between _____, of legal age, __*(civil status)*__, owner/proprietor of _____ and a resident of _____.
- and -

_____, of legal age, __*(civil status)*__, owner/proprietor of _____ and a resident of _____.

THAT both parties agree to join together their manpower, equipment, and what is needed to facilitate the Joint Venture to participate in the Eligibility, Bidding and Undertaking of the hereunder stated project to be conducted by the __*(Name of the Procuring Entity)*__.

NAME OF PROJECT	CONTRACT AMOUNT

That both parties agree to be jointly and severally liable for the entire assignment.

That both parties agree that _____ and _____ own the share and interest of _____ and _____ [indicate percentage of shares) respectively

That both parties agree that _____ and/or _____ shall be the Official Representative of the Joint Venture, and is granted full power and authority to do, execute and perform any and all acts necessary and/or to represent the Joint Venture in the bidding as fully and effectively and the Joint Venture may do and if personally present with full power of substitution and revocation.

THAT this Joint Venture Agreement shall remain in effect only for the above stated Projects until terminated by both parties.

Done this _____ day of _____, in the year of our Lord _____.

_____ _____

SIGNED IN THE PRESENCE OF:

_____ _____
Witness Witness

REPUBLIC OF THE PHILIPPINES) S.S.
PASIG CITY, METRO MANILA)

A C K N O W L E D G M E N T

BEFORE ME, a Notary Public in and for Pasig City, Metro Manila, Philippines, this _____ day of _____, 201_ personally appeared:

GOVERNMENT-ISSUED IDENTIFICATION CARD

NAME	Number	Issued on	Issued at
_____	_____	_____	_____
_____	_____	_____	_____

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledged to me that same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a JOINT VENTURE AGREEMENT consisting of ___ pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witnesses on the left hand margin of each and every page hereof.

WITNESS MY HAND AND SEAL on the date and place first above written.

NOTARY PUBLIC
Until December 31, 201_

Doc. No. _____
Page No. _____
Book No. _____
Series of 201_____

NET FINANCIAL CONTRACTING CAPACITY (NFCC) FORM

A. Summary of the Applicant Supplier's/Distributor's/Manufacturer's assets and liabilities on the basis of the attached income tax return and audited financial statement, stamped "RECEIVED" by the Bureau of Internal Revenue or its duly accredited and authorized institution, for the preceding calendar/tax year which should not be earlier than two (2) years from the date of submission.[1]

Year 20__		
1.	Current Assets	
2.	Current Liabilities	
3.	Total Net Worth	
4.	Total Value of outstanding or ongoing Projects	

B. The Net Financial Contracting Capacity (NFCC) based on the above data is computed as follows:

In case of a bid involving two or more lots, the bidder shall indicate in the NFCC from the lots bid for, in their order of priorities or preferences.

The first lot in the order shall follow the following formula:

> NFCC **=** [(current assets minus current liabilities) **x** (15)] **-** [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started.]

For subsequent lots, the formula shall be as follows:

> NFCC **=** [(current assets minus current liabilities) **x** (15)] **-** [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started **+** value of the prior lot or lots bid for]

[1] *In case of a joint venture, the NFCC shall be computed based on the Audited Financial Statement of the local lead partner, unless it is shown by clear proof that the other partners to the joint venture have infused capital investment to support the operation of the local lead partner to ensure compliance with the obligations under the contracts in this projection which case the NFCC of the foreign joint venture or the minority partner of the joint venture shall be computed.*

C. The following are the packages / lots / items that we are bidding for, stated in the order of preference.[2]

1st:

Package/Lot/Item	Description	ABC	NFCC Formula	NFCC
			[(current assets - current liabilities) **x** (15)] - [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started]	

2nd:

Package/Lot/Item	Description	ABC	NFCC Formula	NFCC
			[(current assets - current liabilities) **x** (15)] - [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started + ABC of 1st Package/Lot/Item bid for]	

3rd:

Package/Lot/Item	Description	ABC	NFCC Formula	NFCC
			[(current assets - current liabilities) **x** (15)] - [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started + ABC of 1st and 2nd Package/Lot/Item bid for]	

[2] *The bidder may add tables as may show the different lots bid for and their corresponding NFCC.*

4th:

Package/Lot/Item	Description	ABC	NFCC Formula	NFCC
			[(current assets - current liabilities) **x** (15)] - [value of all outstanding or uncompleted portions of the projects under going contracts, including awarded contracts yet to be started + ABC of 1st, 2nd and 3rd Package/Lot/Item bid for]	

.
.
.
.

This is to certify that the aforementioned NFCC computation is sufficient for all the packages / lots / items being bid for:

Submitted by:

_____
Name of Supplier /Distributor/ Manufacturer

_____
Name of Authorized Representative

Bid Security (Bank Guarantee) Form

WHEREAS, *[insert name of Bidder]* (hereinafter called the "Bidder") has submitted its bid dated *[insert date]* for the *[insert name of contract]* (hereinafter called the "Bid").

KNOW ALL MEN by these presents that We *[insert name of Bank]* of *[insert name of Country]* having our registered office at *[insert address]* (hereinafter called the "Bank" are bound unto the *DEPARTMENT OF EDUCATION Central Office,* (hereinafter called the "Entity"), in the sum of *[insert amount]* for which payment well and truly to be made to the said Entity the Bank binds itself, its successors and assigns by these presents.

SEALED with the Common Seal of said Bank this _____ day of _____ 201__.

THE CONDITIONS of this obligation are:

1. If the Bidder:
   (a) withdraws its Bid during the period of bid validity specified in the Form of Bid; or
   (b) does not accept the correction of arithmetical errors of its bid price in accordance with the Instructions to Bidder; or
2. If the Bidder having been notified of the acceptance of its bid by the Procuring Entity during the period of bid validity:
   (a) fails or refuses to execute the Contract Form in accordance with the Instructions to Bidders, if required; or
   (b) fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders.

We undertake to pay to the Entity up to the above amount upon receipt of its first written demand, without the Entity having to substantiate its demand, provided that in its demand the Entity will note that the amount claimed by the Entity is due to the Entity owing to the occurrence of one or both of the two (2) conditions, specifying the occurred condition or conditions.

The Guarantee will remain in force up to and including the date *[insert days]* days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Entity, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

DATE SIGNATURE OF THE BANK
WITNESS SEAL
(Signature, Name and Address)

Bid Securing Declaration Form

[shall be submitted with the Bid if bidder opts to provide this form of bid security]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

BID SECURING DECLARATION
Project Identification No.: *[Insert number]*

To: *[Insert name and address of the Procuring Entity]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Bid Security, which may be in the form of a Bid Securing Declaration.

2. I/We accept that: (a) I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of two (2) years upon receipt of your Blacklisting Order; and, (b) I/we will pay the applicable fine provided under Section 6 of the Guidelines on the Use of Bid Securing Declaration, within fifteen (15) days from receipt of the written demand by the procuring entity for the commission of acts resulting to the enforcement of the bid securing declaration under Sections 23.1(b), 34.2, 40.1 and 69.1, except 69.1(f),of the IRR of RA No. 9184; without prejudice to other legal action the government may undertake.

3. I/We understand that this Bid Securing Declaration shall cease to be valid on the following circumstances:

   a. Upon expiration of the bid validity period, or any extension thereof pursuant to your request;
   b. I am/we are declared ineligible or post-disqualified upon receipt of your notice to such effect, and (i) I/we failed to timely file a request for reconsideration or (ii) I/we filed a waiver to avail of said right; and
   c. I am/we are declared the bidder with the Lowest Calculated Responsive Bid, and I/we have furnished the performance security and signed the Contract.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of *[month] [year]* at *[place of execution]*.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Omnibus Sworn Statement (Revised)

[shall be submitted with the Bid]

REPUBLIC OF THE PHILIPPINES)
CITY/MUNICIPALITY OF _____) S.S.

AFFIDAVIT

I, [Name of Affiant], of legal age, [Civil Status], [Nationality], and residing at [Address of Affiant], after having been duly sworn in accordance with law, do hereby depose and state that:

1. *[Select one, delete the other:]*

   [If a sole proprietorship:] I am the sole proprietor or authorized representative of [Name of Bidder] with office address at [address of Bidder];

   [If a partnership, corporation, cooperative, or joint venture:] I am the duly authorized and designated representative of [Name of Bidder] with office address at [address of Bidder];

2. *[Select one, delete the other:]*

   [If a sole proprietorship:] As the owner and sole proprietor, or authorized representative of [Name of Bidder], I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached duly notarized Special Power of Attorney;

   [If a partnership, corporation, cooperative, or joint venture:] I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for [Name of the Project] of the [Name of the Procuring Entity], as shown in the attached [state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable;)];

3. [Name of Bidder] is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board, **by itself or by relation,**

membership, association, affiliation, or controlling interest with another blacklisted person or entity as defined and provided for in the Uniform Guidelines on Blacklisting;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. [Name of Bidder] is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. *[Select one, delete the rest:]*

   [If a sole proprietorship:] The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

   [If a partnership or cooperative:] None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

   [If a corporation or joint venture:] None of the officers, directors, and controlling stockholders of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. *[Name of Bidder]* complies with existing labor laws and standards; and

8. *[Name of Bidder]* is aware of and has undertaken the responsibilities as a Bidder in compliance with the Philippine Bidding Documents, which includes:

   a. Carefully examining all of the Bidding Documents;
   b. Acknowledging all conditions, local or otherwise, affecting the implementation of the Contract;
   c. Making an estimate of the facilities available and needed for the contract to be bid, if any; and
   d. Inquiring or securing Supplemental/Bid Bulletin(s) issued for the *[Name of the Project]*.

9. *[Name of Bidder]* did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any

person or official, personnel or representative of the government in relation to any procurement project or activity.

10. **In case advance payment was made or given, failure to perform or deliver any of the obligations and undertakings in the contract shall be sufficient grounds to constitute criminal liability for Swindling (Estafa) or the commission of fraud with unfaithfulness or abuse of confidence through misappropriating or converting any payment received by a person or entity under an obligation involving the duty to deliver certain goods or services, to the prejudice of the public and the government of the Philippines pursuant to Article 315 of Act No. 3815 s. 1930, as amended, or the Revised Penal Code.**

IN WITNESS WHEREOF, I have hereunto set my hand this __ day of ___, 20__ at _____, Philippines.

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

FINANCIAL BID FORM

Date: _____
Project Nº: _____

The Secretary
Department of Education
DepEd Complex, Central Office
Meralco Avenue, Pasig City

Attention: The Chairperson
Bids and Awards Committee

Gentlemen and/or Ladies:

Having examined the Bidding Documents including Bid Bulletin Numbers *[insert numbers],* the receipt of which is hereby duly acknowledged, we, the undersigned, offer to *[supply/deliver/perform] [description of the Goods]* in conformity with the said Bidding Documents for the sum of *[total Bid amount in words (and figures)*] or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we undertake to provide a performance security in the form, amounts, and within the times specified in the Bidding Documents.

We agree to abide by this Bid for the Bid Validity Period specified in BDS provision for ITB Clause 17.1 and 18.2, respectively, and it shall remain binding upon us and may be accepted at any time before the expiration of that bid validity period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements as per ITB Clause 5 of the Bidding Documents.
.

We likewise certify/confirm that the undersigned, *[for sole proprietorships, insert: as the owner and sole proprietor or authorized representative of* Name of Bidder, has the full power and authority to participate, submit the bid, and to sign and execute the ensuing contract, on the latter's behalf for the Name of Project of the Name of the Procuring Entity] *[for partnerships, corporations, cooperatives, or joint ventures, insert: is granted full power and authority by the* Name of Bidder*,* to participate, submit the bid, and to sign and execute the ensuing contract on the latter's behalf for Name of Project of the Name of the Procuring Entity].

We, further, confirm that, for purposes of this bid, and if such Bid is accepted, the address stated below shall be the Supplier's official address and contact numbers, as reflected in the *(state proof of billing e.g. PhilGEPS Certificate, Mayor's Permit, SEC, Tax Clearance)*

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Dated this _____ day of _____ 20_____.

_____ _____

[signature over printed name of Authorized Representative] [in the capacity of _____] (designation of Authorized Representative

Duly authorized to sign Bid for and on behalf of _____

[Registered Company/Business Name of the Bidder]

Address :_____ Telephone No :_____

Telefax: _____ Email address :_____

Performance Securing Declaration (Revised)

[if used as an alternative performance security but it is not required to be submitted with the Bid, as it shall be submitted within ten (10) days after receiving the Notice of Award]

REPUBLIC OF THE PHILIPPINES)
CITY OF _____) S.S.

PERFORMANCE SECURING DECLARATION

Invitation to Bid: [Insert Reference Number indicated in the Bidding Documents]
To: [Insert name and address of the Procuring Entity]

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, to guarantee the faithful performance by the supplier/distributor/manufacturer/contractor/consultant of its obligations under the Contract, I/we shall submit a Performance Securing Declaration within a maximum period of ten (10) calendar days from the receipt of the Notice of Award prior to the signing of the Contract.

2. I/We accept that: I/we will be automatically disqualified from bidding for any procurement contract with any procuring entity for a period of one (1) year for the first offense, or two (2) years **for the second offense**, upon receipt of your Blacklisting Order if I/We have violated my/our obligations under the Contract;

3. I/We understand that this Performance Securing Declaration shall cease to be valid upon:

   a. issuance by the Procuring Entity of the Certificate of Final Acceptance, subject to the following conditions:
      i. Procuring Entity has no claims filed against the contract awardee;
      ii. It has no claims for labor and materials filed against the contractor; and
      iii. Other terms of the contract; or

   b. replacement by the winning bidder of the submitted PSD with a performance security in any of the prescribed forms under Section 39.2 of the 2016 revised IRR of RA No. 9184 as required by the end-user.

IN WITNESS WHEREOF, I/We have hereunto set my/our hand/s this ____ day of [month] [year] at [place of execution].

[Insert NAME OF BIDDER OR ITS AUTHORIZED REPRESENTATIVE]
[Insert signatory's legal capacity]
Affiant

[Jurat]
[Format shall be based on the latest Rules on Notarial Practice]

Performance Security (Bank Guarantee) Form

To : The Secretary
Department of Education
DepEd Complex, Meralco Avenue
Pasig City

Attention: The Chairperson
Bids and Awards Committee

WHEREAS, *[insert name and address of Supplier]* (hereinafter called the "Supplier") has undertaken, in pursuance of Contract No. *[insert number]* dated *[insert date]* to execute *[insert name of contract and brief description]* (hereinafter called the "Contract");

AND WHEREAS, it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS, we have agreed to give the Supplier such a Bank Guarantee;

NOW THEREFORE, we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Supplier, up to a total of *[insert amount of guarantee]* proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[insert amount of guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed there under or of any of the Contract documents which may be made between you and the Supplier shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until the date of your issuance of the Notice of Final Acceptance.

SIGNATURE AND SEAL OF THE GUARANTOR _____
NAME OF BANK _____
ADDRESS _____
DATE_____

SUPPLIER's Witness

PROJECT: **Mass Production and Supply of Science and Mathematics Equipment Packages to Public Elementary Schools for Grades 1 to 3 & 4 to 6, Public Junior High School for Grades 7 to 10 and Public Senior High School for Grades 11 to 12 (Core and Stem)**

CONTRACT NO.: **2021-BLR4(001-006)-BV-CB-____**

CONTRACT AGREEMENT

SUPPLIER

THIS AGREEMENT made and entered into this _____ day of _____ 2021 by and between **DEPARTMENT OF EDUCATION**, located at DepEd Complex, Meralco Avenue, Pasig City, Philippines, represented herein by its _____, _____, as per Department Order No. 008, s. 2021 (hereinafter referred to as **"DEPED"**); and _____ represented herein by its _____, _____, with office address at _____, Philippines (hereinafter referred to as "_____").

DEPED and _____ are collectively called "**PARTIES**."

DEPED's Witness

WHEREAS, **DEPED** invited bids for the mass production and supply of Science and Mathematics Equipment Packages consisting of sixteen (16) Lots and received bids from _____ (__) bidders for Lot No. __; **DEPED** opened, read, and evaluated the bids of the _____ (__) bidders and declared _____ as having the lowest calculated bid for Lot No. __; after evaluation, **DEPED** post-qualified and declared the bid of _____ as the lowest calculated responsive bid for Lot No. __ in the sum of **PHILIPPINE PESOS _____ MILLION, _____ THOUSAND, _____ and 00/100 (PhP _____) ONLY**, (hereinafter called the "Contract Price") detailed as follows:

Department of Education

Lot No.	Description	Items and Quantity	Amount (PhP)

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents as required by the 2016 Revised Implementing Rules and Regulations of Republic Act No. 9184 shall be deemed to form and be read and construed as part of this Agreement, viz:

SUPPLIER's Witness

i. Philippine Bidding Documents (PBD);

a. Schedule of Requirements;

b. Technical Specifications;

c. General and Special Conditions of the Contract; and

d. Bid Bulletin No. 1 dated _____.

SUPPLIER

ii. _____**'s** bid, including the Eligibility Requirements, Technical and Financial Proposals, and all other documents or statements submitted;

iii. Performance Security;

iv. Notice of Award of Contract and _____**'s** conforme thereto; and

v. Other contract documents required by existing laws and/or DepEd in the PBD. _____ agrees that additional contract documents or information prescribed by the GPPB that are subsequently required for submission after the contract execution, such as the Notice to Proceed, Variation Order, and Warranty Security, shall form part of the Contract.

DEPED's Witness

5. The goods supplied by _____ under this Contract shall be picked-up or hauled by the third-party logistics provider designated by **DEPED**. Risk and title to the goods shall pass from _____ to **DEPED** upon receipt and final acceptance at _____**'s** warehouse.

6. The goods shall be ready for pick-up or hauling by the third party logistics within the period as may be provided in the Notice to Proceed.

Department of Education

7. _____ shall post a Performance Security within ten (10) calendar days from receipt of the Notice of Award in the form and amount prescribed therein. The performance security shall be posted in favor of **DEPED**, and shall be forfeited in the event it is established that _____ is in default of any of its obligation under this contract. _____ shall be responsible for the extension of its performance security and/or undertake to renew its performance security whenever necessary, and without need of prior notice or instruction from the **DEPED**, to ensure that it is in force and effect for the whole duration of the contract and until a Certificate of Final Acceptance is duly issued.

SUPPLIER's Witness

SUPPLIER

DEPED's Witness

Department of Education

6. The goods supplied under this Contract should conform to and comply with the standards mentioned in Section VII. Technical Specifications and Section VI. Schedule of Requirements of the Bidding Documents, as amended by Bid Bulletin No. _____ dated _____, and must be in accordance with the technical specifications of the items as offered in the bid; or in case where samples were submitted and evaluated during the post-qualification stage of the procurement, in accordance with the technical specifications of the approved samples. Any proposal to deliver items of equivalent, higher or superior technical specifications, in lieu of those of the approved bids or samples shall be discretionary to **DEPED** and is subject to the evaluation and recommendation of the end-user or implementing units and the approval of the herein authorized representative and signatory. A copy of the final and approved technical specifications is hereto attached as Annex "A" and made an integral part hereof.

7. Goods with defects or non-compliant with the required specifications shall be rejected by **DEPED** and replaced by _____ in accordance with the warranty provisions in the bidding documents**. DEPED** shall have the option to inspect _____**'s** premises covered by the Contract, at any time or stage of contract implementation, to monitor and assess _____**'s** capacity to discharge its contractual obligations.

8. The procured goods or items contemplated under this Contract shall be inspected by **DEPED** Inspectorate Team prior to pick-up or hauling from _____**'s** warehouse in accordance with the provisions of the Special Conditions of the Contract, the Schedule of Requirements, or otherwise indicated in other parts of the bidding documents.

9. In case _____ encounters condition(s) impeding timely delivery of the goods, _____ shall promptly notify **DEPED Procurement Management Serivce-Contract Management Division (ProcMS-CMD)** in writing of such condition(s). As a rule and on account of the emergency nature of this project, no work suspensions and/or contract delivery period extension shall be allowed.

10. The Contract Price shall be paid to _____ in accordance with the following disbursement procedures:

    10.1. An advance payment not to exceed fifteen percent (15%) of the Contract Price shall be allowed and paid within sixty (60) calendar days from signing of the contract. An irrevocable Letter of Credit or Bank Guarantee of an equivalent amount must be submitted, and shall remain

valid until the goods are delivered, and accompanied by a claim for advance payment.

10.2. _____ may submit a request for payment based on Progress Reports which shall be attached to the progress billing and include the following: (i) cumulative quantities of items delivered based on the schedule of deliveries and other relevant terms and conditions of the Contract; (ii) Inspection and Acceptance Reports (IARs), including certification by _____, duly signed and dated by the authorized representative of the **DEPED** indicating that the items have been delivered in accordance with the Contract. Other documents in support of a request for payment may be prescribed by **DEPED** pursuant to existing disbursement, accounting and auditing rules and procedures.

10.3. Subject to the recoupment of the advance payment contemplated in Clause 10.1. above, and retention contemplated in the immediately succeeding clause, payment shall be made to _____ within sixty (60) days from submission of the documents specified in SCC Clause 2.2 and other documents as may be prescribed by **DEPED**, in the following manner:

10.3.1. For the initial progress payment, a minimum of twenty-five percent (25%) of the Contract Price shall be paid to _____ upon a minimum of twenty-five percent (25%) delivery and acceptance of the items by **DEPED**'s authorized representative;

10.3.2. Final payment shall constitute release of the retention money in case of expiry of the warranty period, or whatever is left of it, after it has been called for use under the warranty provision.

11. Payments shall be subject to the "Warranty" provision in the form of either retention money in an amount equivalent to three percent (3%) of every progress payment or a Special Bank Guarantee in the amount equal to three percent (3%) of the Contract Price required under Section 62 of R.A. 9184 and its revised IRR.

11.1. The warranty period shall reckon from the date of issuance of the Certificate of Final Acceptance by the **DEPED** that the delivered goods have been duly inspected and accepted.

12. _____ shall be liable for liquidated damages for the delay in its performance in an amount equal to one-tenth (1/10) of one percent (1%) of the cost of the delayed goods scheduled for delivery, for every day of delay until such goods are finally delivered and accepted by **DEPED**. **DEPED** shall deduct

SUPPLIER's Witness

the liquidated damages from any money due or which may become due to _____, or collect from any of the securities or warranties posted by _____, whichever is convenient to **DEPED**. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the Contract Price, **DEPED** may rescind or terminate the Contract, without prejudice to other courses of action and remedies available under the circumstances.

SUPPLIER

13. The **PARTIES** shall make every effort to resolve amicably and by mutual consultation any and all disputes or differences arising between the Parties in connection with the implementation of the Agreement. Should such dispute not be resolved amicably, it shall be submitted to arbitration in the Philippines according to the provisions of Presidential Decree No. 242 and Executive Order No. 292. Provided, however, that by mutual agreement, the Parties may agree in writing to resort to other alternative modes of dispute resolution.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in accordance with governing laws on the day and year first above written.

SIGNED, SEALED AND DELIVERED BY:

DEPED's Witness

_____ _____

_____ _____

Department of Education _____

SIGNED IN THE PRESENCE OF:

_____ _____

DEPED's Witness _____*'s Witness*

Department of Education

APPROVED BY:

_____

_____

Department of Education

CERTIFIED FUNDS AVAILABLE:

SUPPLIER's Witness

_____
Chief Accountant

REPUBLIC OF THE PHILIPPINES)
PASIG CITY, METRO MANILA) S.S

ACKNOWLEDGMENT

SUPPLIER

BEFORE ME, a Notary Public in and for _____, Philippines, this _____ day of _____ 2021 personally appeared:

NAME	**GOVERNMENT ISSUED ID** *(Number, Issued On, Issued By)*
_____	
_____	

Department of Education

DEPED's Witness

_____
_____
_____

Known to me and to me known to be the same persons who executed the foregoing instrument and acknowledge to me that the same is the free and voluntary act and deed of the entities which they respectively represent.

The foregoing instrument is a CONTRACT consisting of six (6) pages (exclusive of attachments), including this page on which this acknowledgment is written and signed by the parties hereto and their instrument witness on the left-hand margin of each and every page hereof.

Department of Education

WITNESS MY HAND AND SEAL on the date and place first above written.

Doc. No. _____;
Page No. _____;
Book No. _____;
Series of 2021.

NOTARY PUBLIC

BANK GUARANTEE FORM FOR ADVANCE PAYMENT

To: **Department of Education**
[name of Contract]

Gentlemen and/or Ladies:

In accordance with the payment provision included in the General Conditions of Contract to provide for advance payment, *[name and address of Supplier]* (hereinafter called the "Supplier") shall deposit with the PROCURING ENTITY a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

We, the *[bank or financial institution]*, as instructed by the Supplier, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the PROCURING ENTITY on its first demand without whatsoever right of objection on our part and without its first claim to the Supplier, in the amount not exceeding *[amount of guarantee in figures and words]*.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed thereunder or of any of the Contract documents which may be made between the PROCURING ENTITY and the Supplier, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[date]*.

Yours truly,

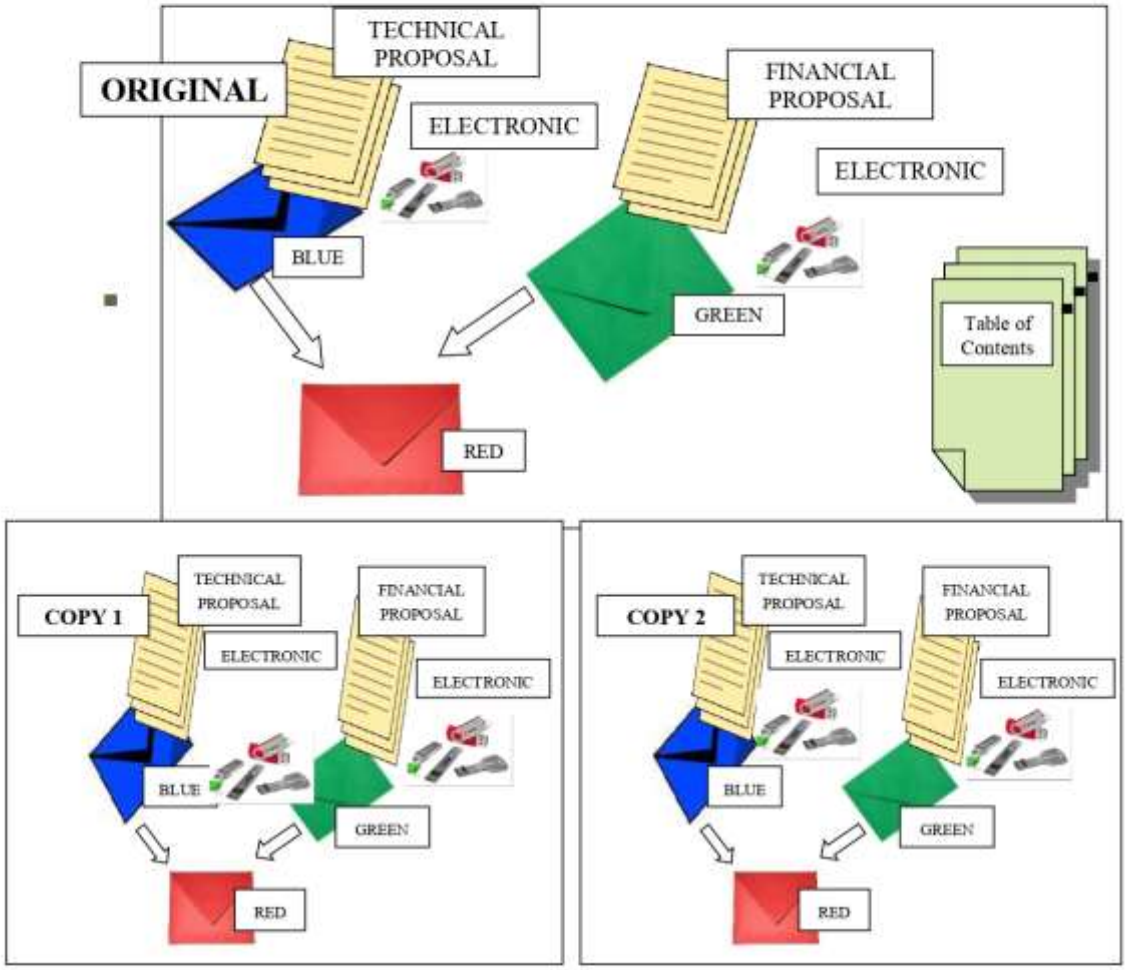
Signature and seal of the Guarantors

_____
[name of bank or financial institution]

_____
[address]

_____
[date]

SEALING AND MARKING OF BIDS



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ORIGINAL / COPY NO. _____

[BIDDER'S COMPANY NAME]
[COMPANY'S OFFICE ADDRESS]
PUBLIC BIDDING: [PROJECT TITLE]
BIDDING FOR __[no.]__:__[item description]__(if applicable)

THE CHAIRPERSON
BIDS AND AWARDS COMMITTEE
DEPARTMENT OF EDUCATION CENTRAL OFFICE
[VENUE OF BID OPENING]

DO NOT OPEN BEFORE [TIME AND DATE OF BID OPENING]

Republic of the Philippines

gpb

Government Procurement Policy Board