Nicholls State University

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ADDENDUM NO 1
FOR
NICHOLLS STATE UNIVERSITY
THIBODAUX, LOUISIANA
07/27/2021

PAGE 1 OF 1

Your reference is directed **to Bid-SB01835 – Procurement of Education Kits**, which has a deadline for the submission of sealed bids of August 13, 2021 at 3:00 P.M. CT.

Purpose of Addendum:

Replace the Specification and Bid Form Pages 1-5 with the attached Specifications and Bid Form Pages 1-10.

Please discard the original Specifications and Bid Form Pages 1-5 and replace with the Specification and Bid Form Pages 1-10

RECEIPT OF ADDENDUM SHOULD BE ACKNOWLEDGED ON THE BID RESPONSE FORM. FAILURE TO ACKNOWLEDGE ADDENDA MAY BE CAUSE FOR BID NOT TO BE CONSIDERED.

Terry G. Dupre

Terry G. Dupre
Director of Purchasing, Property Control
and Support Services Administration

SHIPPING COST SHALL BE INCLUDED IN ALL PRICING

Bid Item 1: 3-D Molecular Design WK-08 Water Kit 8-cup set, or equal

A teaching tool to help educators teach water concepts. Students will have the ability to use these magnetic water molecules to discover hydrogen bonding, make ice, dissolve salt, evaporate water, explore transpiration, create ethanol, and much more.

This tool should be able to allow teachers to move through water lessons faster, and allow students ask more questions, and to discuss concepts in greater depth.

The students should have the ability to feel the various strengths of hydrogen, covalent and ionic bonds. Students should have the ability to explore the water cycle and make ice. They also can show the differences between molecular adhesion, cohesion and capillary action and demonstrate surface tension, evaporation, condensation and solubility.

Each single kit cup includes pieces for 12 water molecules, 1 sodium, 1 chloride, 1 ethane and 1 hydroxyl group. The embedded magnets in atoms in this molecular modeling kit reflect the correct positive or negative charges (except for non-polar ethane) to allow students to experience molecular attraction or repulsion hands-on.

Quantity required = 16 kits @ $_____ per kit = Total $_____

Bid Item 2: 3-D Molecular Design FGIK-06 Flow of Genetic Information Kit, 6-Group Set, or equal

The students should be able to manipulate the kit's color-coded foam nucleotides and placemats, students to achieve:

- Model replication of the leading and lagging strands of DNA.
- Model transcription as they copy one strand of DNA into mRNA using an RNA polymerase.
- Model translation/protein synthesis as they decode the mRNA into protein on the ribosome placemat.

The students should have the ability to then explore the folding of the protein into its final 3D shape using the popular Amino Acid Kit AASK-06

Quantity required = 16 Kits @ $_____ per kit = Total $_____

Bid Item 3: 3-D Molecular Design AASK-06 Amino Acid Starter Kit 6-Group Set, or equal

Hands-on protein folding kit to allow for teaching protein structure basics. Students should have the ability to fold a protein while exploring how the chemical properties of amino acids to determine its final structure. The Student should be able to use the Amino Acid Starter Kit© to:

- Learn that the 20 amino acids all share a common backbone but have different side chains, each with different chemical properties.
- Identify the chemical properties of the side chains through a dual coloring scheme guided by the kit's chemical properties circle, amino acid side chain list and colored plastic clips.
- Group the side chains into one of 5 categories: hydrophobic (nonpolar), hydrophilic (polar), negatively charged, positively charged, and cysteines, which sometimes form disulfide bonds. The colored clip at the base of each side chain indicates chemical properties while embedded colored balls in the amino acid side chain model show atomic structure.
- Employ the kit's protein-folding activities to first explore the primary and tertiary structure of proteins by constructing a generic 15-amino acid protein, then learn about the secondary structure of proteins by folding a toober model of the first of 3 zinc fingers of the Zif268 protein.

Each 1-group set should include 1 chemical properties circle, 1 amino acid side chain chart, 22 amino acids, 1 mini toober, 22 colored plastic clips and 6 hydrogen bond connectors.

Quantity required = 16 Kits @ $_____ per kit = Total $_____

Bid Item 4: 3-D Molecular Design EAK-06 Enzymes in Action Kit 6-Group set, or equal

A foam protein kit that should introduce students to enzymes. The students should have the ability tol use the foam model pieces and activities to identify the substances involved in enzymatic activity, explore how enzymatic reactions occur, demonstrate catabolism and anabolism, and much more.

The Kit should have the ability to create catalytic connections with models. The kit' should have colorful foam pieces that represent enzymes, which speed up chemical reactions within cells, and substrates, the small molecules upon which enzymes act. The protein model kit should allow the student to:

- Simulate enzymatic actions.Explain enzymatic specificity.
- Investigate 2 types of enzyme inhibitors used in regulating enzymatic activity.
- Examine how an enzyme may affect activation energy.

Each 3-group set should contain 30 foam pieces (6 gray enzymes, 3 red substrates, 3 tan incompatible substrates, 3 purple competitive inhibitors, 3 blue noncompetitive inhibitors, and 6 green pieces to show catabolism and 6 orange pieces to show anabolism) and 3 sheets of stickers.

Quantity required = 16 Kits @ $_____ per kit = Total $_____

Bid Item 4: 3-D Molecular Design CHK-02 Chromosome Connection Kit 2-Group set, or equal

This kit should allow the students to make the connection between chromosomes at the microscopic scale and chromosomes at the molecular scale. The Chromosome Connections Kit should enhance the classroom's exploration of cell cycle, cell division and genetics.

Students should be able to manipulate the colorful foam pieces in the kit to:

- Model chromosome structure and anatomy.
- Construct Punnett squares to connect inheritance of traits to chromosomes at the molecular level.
- Compare and contrast mitosis and meiosis.
- Model mechanisms that contribute to genetic variation.
- Model chromosomal aberrations such as nondisjunctions, translocations, inversions, deletions and duplications.

Set to include	**(2-Group set)**
Red Scaling Graphics	8
Blue Scaling Graphics	8
Red Scaling Graphic Connectors	8
Blue Scaling Graphic Connectors	8
Red Chromosome Connectors	8
Blue Chromosome Connectors	8
Red Nucleotide Connectors	4
Blue Nucleotide Connectors	4
Red Chromosome Segments	64
Blue Chromosome Segments	64
Red Chromosome Endcaps	24
Blue Chromosome Endcaps	24
Red Centromere Segments	12
Blue Centromere Segments	12
Kinetochores	24
Spindle Fibers	24
Red DNA Nucleotides	160
Blue DNA Nucleotides	160
Gray DNA Nucleotides	64

Quantity required = 24 Kits @ $_____ per kit = Total $_____

Bid Item 5: 3-D Molecular Design PMTK-03 Phospholipid & Membrane Transport Kit 3-Group Set, or equal

Students should have the ability to discover the spontaneous formation of membranes for themselves using this kit that features the amphipathic structure of phospholipids – with their hydrophilic heads and hydrophobic tails. Students should have the ability to explore the chemical structure of a phospholipid and then construct a phospholipid monolayer, a micelle and a bilayer, leading to an understanding of the plasma membrane structure. Additional components of this kit allow students to construct lipid bilayers and consider the role of transport proteins in moving ions and small molecules across membranes.

Kit should contain

3-Group
150 Mini Phospholipids
15 Membranes
15 Glucose
3 ATP
90 H_2O
84 Na^+
84 K^+
3 Aquaporin
3 K^+ Leak Channel
3 Gated K^+ Channel
3 GLUT1 Carrier Protein
3 Na^+/K^+ Pump
18 Plastic Pegs
Large Phospholipids
- 9 Saturated Fatty Acid Tails
- 12 Unsaturated Fatty Acid Tails
- 27 Hydroxyl Groups
- 27 Hydrogen
- 3 Glycerol Backbone
- 3 Phosphatidylinositol
- 3 Phosphatidylcholine
- 3 Phosphatidylserine
- 3 Phosphatidylethanolamine

3 Sticker Sheets

Quantity required = 16 Kits @ $_____ per kit = Total $_____

Bid Item 6: 3-D Molecular Design NaCI-04 NaCI Lattice, 4x4x4 cube, or equal

This kit should allow for salt crystal lessons to be displayed from 2-D to 3D. The kit contains colorful sodium chloride ion models that should help students discover the cubic nature of salt crystals, efficient lattice packing, high melting temperature, and brittleness and cleavage planes.

Each ion model should have 6 embedded magnets that should allow for 6:6 coordination and tight packing. The Student Should have the ability to explore how the positive sodium and negative chloride ions form electrostatic bonds creating a strong crystal structure. The student should also have the ability to see water molecules dissolve salt from the outer edges of the lattice.
Each 4x4x4 lattice should contain 64 ions (32 sodium and 32 chloride)

Quantity required = 16 Each @ $_____ each = Total $_____

Bid Item 7: 3-D Molecular Design 6DDNA-12 6-Group Set of Dynamic DNA-12, or equal

This is should be a teaching tool that will assist students to better understand how the genetic information in DNA is revealed and used. Stuents should be able to twist and unwind the double helix to model DNA replication and RNA transcription. Additional pieces should allow them to make ATP, consider epigenetics and gene expression, and much more. Students should have the ability to assemble the nucleotides, feel the hydrogen bonding of the A-T and G-C base pairs and discover the double helical structure of DNA.

The kit should include 6 A-T and 6 G-C base pairs; 5' hydrogen and 3' oxygen parts; oxygen atoms to model RNA; removable carbons for uracil; ATP, TTP, GTP and CTP models; display stand; teacher resources and lessons

Quantity required = 16 Kits @ $_____ per kit = Total $_____

Bid Item 8: 3-D Molecular Design BGFK Mini Toober B-Globin Folding Kit, or equal

Should give the students the ability to have ß-globin to become real in the students' hands as they fold mini toober fragments into a 3D protein model of ß-globin. The students should have the ability to discuss oxygen transport as they attach O_2 to the iron in the heme group and then explore how a single mutation causes sickle cell anemia. This protein-folding kit should reinforce lessons introduced in other kits, and then should allow the students to explore structure and function.

Small teams first focus on the structure of ß-globin by:

- Using folding maps to mark selected amino acids (primary structure) and alpha helices (secondary structure)
- Folding the protein into its 3-D tertiary structure, adding connectors for stability
- Assembling the 3 fragments together to form the ß-globin protein
- Adding the heme group with an iron atom and O_2

After exploring oxygen transport, the students should be able to remove the glutamic acid at position 6 on the ß-globin model and replace it with valine. The single-point mutation from a negatively charged amino acid to a hydrophobic one should cause red blood cells to clump together and assume the sickle cell shape.

The kit should include 3 mini toobers (red, green, and blue), 3 color-coded laminated folding maps, 4 color-coded bags (blue, green, red, and yellow) containing parts to mark and connect the fragments in the 3-D protein structure, 3 laminated Amino Acid Side Chain Charts© and 3 wooden dowels. The kit should be able to be used successfully by 6 to 9 students working in 3 teams.

Quantity required = 2 Kits @ $_____ per kit = Total $_____

Bid Item 9: 3-D Molecular Design DD-12 Data Dilemma 12-Group Set, or equal

This kit should be a foam puzzle set that is a colorful, engaging tool to encourage scientific collaboration and facilitate discussions about how scientific models evolve.
While using this kit, the students should be able to experience the problem scientists face when new data indicates the mental model of their research topic needs to be modified. As each new data set is introduced and the students form a series of new models — using foam tangram pieces — they should be able to learn that the practice of science is an ongoing process, not a set of facts published in a textbook or online.

The kit should come as a 12-puzzle set. Each set has 6 tangram pieces.

Quantity required = 4 Kits @ $_____ per kit = Total $_____

Bid Item 10: 3-D Molecular Design MCC-02 Making the Cut with CRISPR-Cas9 2-Group Set, or equal

This kit should be able to model how the Cas9 protein is programmed with RNA to search for and identify specific sequences of DNA before making the double-stranded cut. The model should allow students to explore and discuss how Cas9 is being engineered with new features that make it a useful tool for editing the human genome. This kit should be supplied with colorful foam pieces and placemat your students can:

Build a schematic model of the CRISPR-Cas9 RNA-guided endonuclease, including the viral double-stranded DNA and dual guide RNA.

Understand how the Cas9 protein binds to a specific sequence of viral double-stranded DNA at a PAM site - and cuts it.

Demonstrate how that cut destroys viral genome and prevents the infection of bacteria.

This kit should contain

1 Foldable Placemat*
6 White sticky-back Cas9 parts
2 White Nuclease parts
5 Orange tracr RNA pieces
1 Black Spacer RNA piece
40 Red Adenine (A) DNA Nucleotides
40 Yellow Thymine (T) DNA Nucleotides
40 Green Guanine (G) DNA Nucleotides
40 Blue Cytosine (C) DNA Nucleotides
40 Purple RNA Nucleotides (10 each of A, U, G & C)
40 Tan RNA Nucleotides (10 each of A, U, G & C)
40 Blue RNA Nucleotides (10 each of A, U, G & C)
1 Gray Tetraloop
1 Gray Cytosine Deanimase

*Placemat may be folded in half (printing out) before applying the sticky-back foam to make storage in the box easier. Or leave the placemat flat and store outside of box. See Assembly Instructions for more information.

Quantity required = 2 Kits @ $_____ per kit = Total $_____

Bid Item 11: 3-D Molecular Design AABB Amino Acid Building Block Models, or equal

This kit should allow students to discover the basic repeating structure of amino acid backbones by building 2 models. Then they can form a dipeptide bond, linking the 2 models together and creating a chain.

This kit should enable the student to build and compare 2 generic amino acids models using atoms, covalent bonds and hydrogen bonds. Atoms and side chains should be represented by colored spheres and follow the standard CPK color scheme; covalent bonds and hydrogen bonds are represented by sticks. After constructing and identifying the components of the 2 amino acids, they can be linked by a peptide bond to make a dipeptide – splitting out a water molecule.

The kit for the Amino Acid Building Block Models Carbon (black)-4, Oxygen (red)-4, Nitrogen (blue)-2 R-Groups representing side chains (green)-2, Hydrogen (white)-8, Hydrogen Bonds (short white posts)-8, Single Covalent Bonds (short, gray, thick post)-6, Double Covalent Bonds (long, gray, thin post)-6, Link Remover 1

Quantity required = 24 Kits @ $_____ per kit = Total $_____

Bid Item 12: 3-D Molecular Design CAIK-02 CRISPR Adaptive Immunity Kit 2-group Set, or equal

This kit should allow a student to discover how bacteria remember past viral infections and activate their CRISPR systems to search for and destroy the remembered virus' DNA - preventing infection. This introduction to CRISPR biology should prepare your students to understand how the Cas9 protein works. With the CRISPR Adaptive Immunity Kit's engaging foam pieces, your students can:

- Build the bacteria's CRISPR array which includes Cas9, tracr, spacer and repeats.
- Detect the presence of viral double-stranded DNA.
- Integrate a short fragment of this viral genome into the bacteria's CRISPR array.
- Express the CRISPR array to create the Cas9 proteins and the guide RNA.

A 1-group set should contain the following

1 Purple Virus
2 Purple DNAs
1 Purple RNAs
1 Tan Virus
2 Tan DNAs
1 Tan RNAs
1 Blue Virus
2 Blue DNAs
1 Blue RNAs
2 Orange tracr DNAs
3 Orange tracr RNAs
2 White CRISPR/Cas9 DNAs
1 White CRISPR/Cas9 RNA
3 White & Gray CRISPR/Cas9 Proteins
8 Black Repeat DNAs
4 Black Repeat RNAs
2 Green Leader DNAs
3 Viral DNA Chenille Stems

Quantity required = 2 Kits @ $_____ per kit = Total $_____

Bid Item 13: 3-D Molecular Design PLMS-01 Phospholipid Modeling Set, or equal

This Molymod phospholipid model should enable the student to explore the amphipathic structure of phospholipids, the most abundant lipids in membranes. The set should contain all of the atoms and bonds needed to construct five phospholipids: phosphatidylcholine, phosphatidylserine, phosphatidylinositol, phosphatidylethanolamine and sphingomyelin, and compare and contrast their chemical make-up, particularly their hydrophilic heads and hydrophobic tails. The models can be used separately or with other kits.

Phospholipid Modeling Set	
Phosphatidylcholine Model	
Carbon (black)	34
Double bond (with red link)	1
Oxygen (2-hole red)	7
Oxygen (1-hole red)	1
Nitrogen (4-hole blue)	1
Phosphorous (5-hole tan)	1
Hydrogen caps (white)	70
Longer gray bonds	6
Clear short links	41
Molymod® link remover	1
Phosphatidylserine Model	
Carbon (black)	32
Double bond (with red link)	1
Oxygen (2-hole red)	9
Oxygen (1-hole red)	1
Nitrogen (4-hole blue)	1
Phosphorous (5-hole tan)	1
Hydrogen caps (white)	63
Longer gray bonds	8
Clear short links	40
Molymod® link remover	1
Phosphatidylinositol Model	
Carbon (black)	35
Double bond (with red link)	1
Oxygen (2-hole red)	12
Oxygen (1-hole red)	1
Phosphorous (5-hole tan)	1
Hydrogen caps (white)	68
Longer gray bonds	6
Medium gray bonds	6
Clear short links	41
Molymod® link remover	1

Phosphatidylethanolamine Model	
Carbon (black)	31
Double bond (with red link)	1
Oxygen (2-hole red)	7
Oxygen (1-hole red)	1
Nitrogen (4-hole blue)	1
Phosphorous (5-hole tan)	1
Hydrogen caps (white)	64
Longer gray bonds	6
Clear short links	38
Molymod® link remover	1
Sphingomyelin Model	
Carbon (black)	35
Double bond (with red link)	1
Oxygen (2-hole red)	5
Oxygen (1-hole red)	1
Nitrogen (4-hole blue)	1
Nitrogen (3-hole blue)	1
Phosphorous (5-hole tan)	1
Hydrogen caps (white)	75
Longer gray bonds	4
Clear short links	42
Link remover	1

Quantity required = 2 Kits @ $_____ per kit = Total $_____

Total net lump sum – All items 1-13 = $_____

This bid will be awarded on an all or none basis at the total lowest net lump sum received.

SHIPPING COST SHALL BE INCLUDED IN ALL PRICING

THE BRAND NAMES SPECIFIED ARE USED ONLY TO DESCRIBE THE STANDARD OF QUALITY, PERFORMANCE, AND CHARACTERISTICS DESIRED AND IS NOT INTENDED TO LIMIT OR RESTRICT COMPETITION. HOWEVER, IF BIDDING AN "EQUIVALENT" TO BRAND OR MODEL SPECIFIED, BIDDERS SHOULD SUBMIT WITH THE BID RESPONSE INFORMATION (SUCH AS ILLUSTRATIONS, DESCRIPTIVE LITERATURE, TECHNICAL DATA) SUFFICIENT FOR THE UNIVERSITY TO EVALUATE QUALITY, SUITABILITY, AND COMPLIANCE WITH THE SPECIFICATIONS OF THE SOLICITATION DOCUMENT. FAILURE TO SUBMIT DESCRIPTIVE INFORMATION MAY CAUSE BID TO BE REJECTED. ANY CHANGE MADE TO A MANUFACTURER'S PUBLISHED SPECIFICATION SUBMITTED FOR A PRODUCT SHALL BE VERIFIABLE BY THE MANUFACTURER. IF ITEM(S) BID DOES NOT COMPLY WITH SPECIFICATIONS (INCLUDING BRAND AND/OR PRODUCT NUMBER), BIDDER SHOULD STATE IN WHAT RESPECT THE ITEM(S) DEVIATE. FAILURE TO NOTE EXCEPTIONS ON THE RESPONSE FORM WILL NOT RELIEVE THE SUCCESSFUL BIDDER(S) FROM SUPPLYING THE ACTUAL PRODUCTS REQUESTED.

BID SUBMITTED BY: _____
Please print name

COMPANY NAME: _____

TELEPHONE/FAX NO. _____/_____

E-MAIL ADDRESS: _____

Acknowledgment of Addenda:

_____, _____, _____

Bidder should acknowledge addenda issued regarding this bid solicitation. Failure to Acknowledge Addenda may be cause for bid not to be considered.