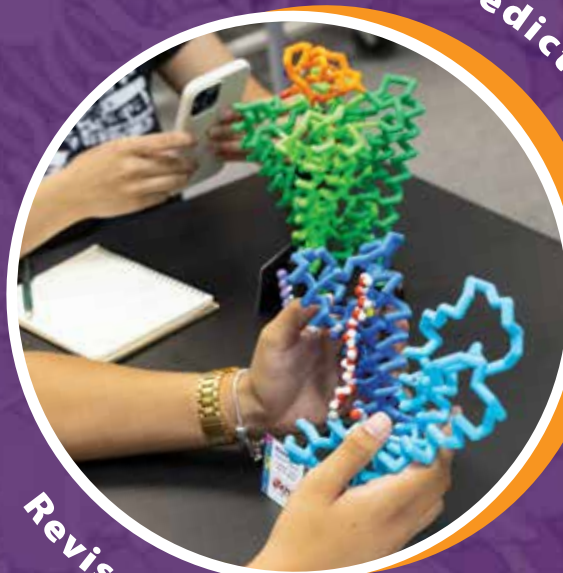


2024 | Catalog

Explore Patterns



Make Predictions



Revise Explanations

Grapple with Complex Biology Concepts



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Find Product Contents and Classroom Resources
at 3dmoleculardesigns.com



Water Kit®

Your students won't forget polarity with these engaging magnetic molecules! They will model hydrogen bonding, make ice, dissolve salt, evaporate water, explore transpiration, create ethanol and much more. All atoms are correctly magnetized to reflect their positive or negative charges.

• Pairs well with the Phospholipid & Membrane Transport Kit® (page 5)

10-Cup Set (WK-10)	\$580	6-Cup Set (WK-06)	\$360
8-Cup Set (WK-08)	\$472	1-Cup Set (WK-01)	\$62

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⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.



NaCl Lattice®

Discover the cubic nature of salt crystals, efficient lattice packing, high melting temperature, brittleness, cleavage planes and more with these models. Each ion model has six embedded magnets to simulate ionic bonding. Water molecules are not included.

4x4x4 Lattice (NACL-04)	\$316	3x3x3 Lattice (NACL-03)	\$150
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Mighty Model Channel Protein Collection® NEW!

Introducing our new 3D print **Mighty Model Channel Protein Collection®**. When using these interactive models and following a phenomenon-driven molecular story, your students will explore how water and ions move in and out of cells. They'll also discover the selectivity factors of each channel. Using our new augmented reality enhancements, they'll dive deeper into the structure of each channel.

- Pairs well with the [Amino Acid Starter Kit®](#) (page 7) and [Phospholipid & Membrane Transport Kit®](#) (page 5)

Mighty Model Channel Protein Collection (MMCP)	\$250
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Aquaporin Mighty Model®

Aquaporin Mighty Model (MMAQ-01)	\$100
Aquaporin Mighty Model – Set of 6 (MMAQ-06)	\$500

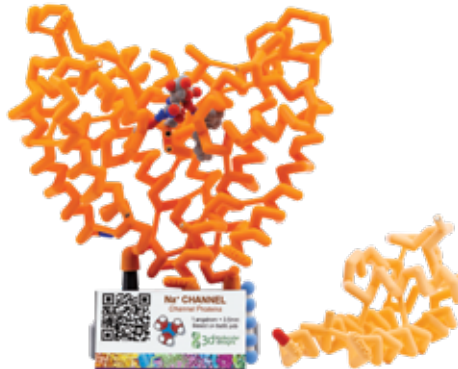
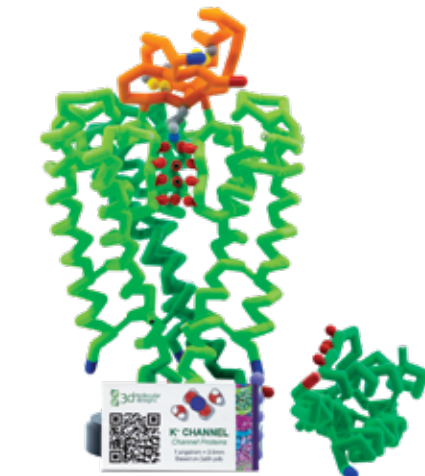
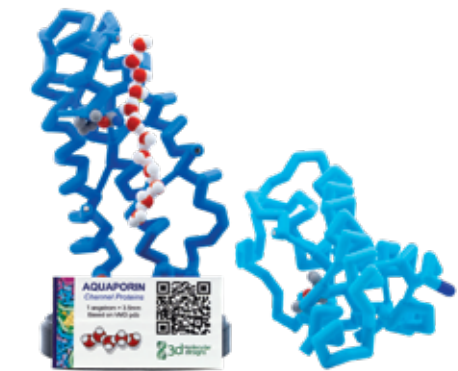
Potassium Ion Channel Mighty Model®

Potassium Ion Channel Mighty Model (MMKC-01)	\$100
Potassium Ion Channel Mighty Model – Set of 6 (MMKC-06)	\$500

Sodium Ion Channel Mighty Model®

Sodium Ion Channel Mighty Model (MMNA-01)	\$100
Sodium Ion Channel Mighty Model – Set of 6 (MMNA-06)	\$500

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Phospholipid & Membrane Transport Kit®

Your students reveal the structure and function of phospholipids, how cell membranes form, and how water and ions move in and out of cells via transport proteins. Students can model different conditions then predict which way water will move making vocabulary like hypertonic, hypotonic, and isotonic memorable.

- Pairs well with the [Water Kit®](#) (page 3)

3-Group Set (PMTK-03)	\$138
1-Group Set (PMTK-01)	\$50

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Phospholipid Modeling Set

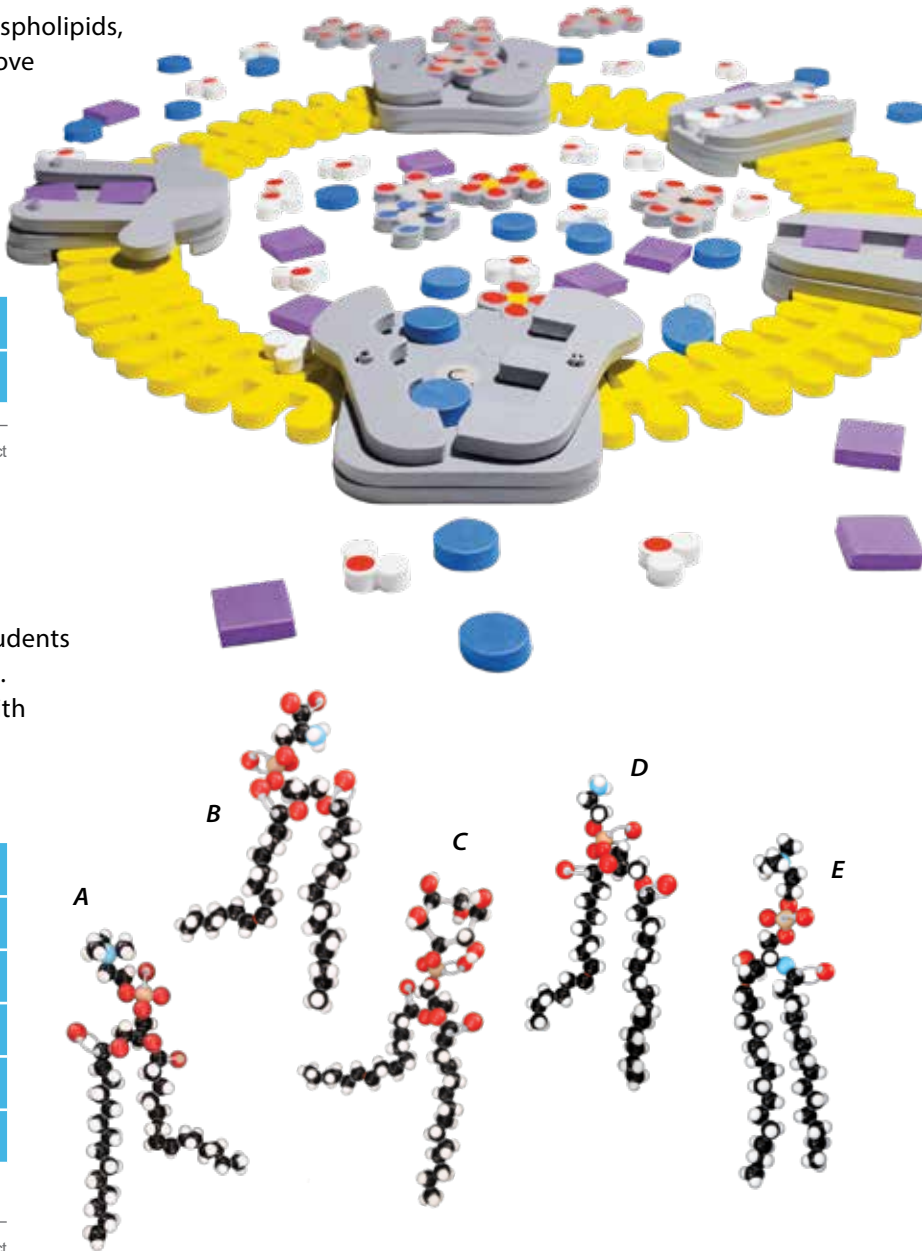
These Molymod® phospholipid models enable your students to explore the amphipathic structure of phospholipids. The phospholipid models can be used separately or with the Phospholipid & Membrane Transport Kit®.

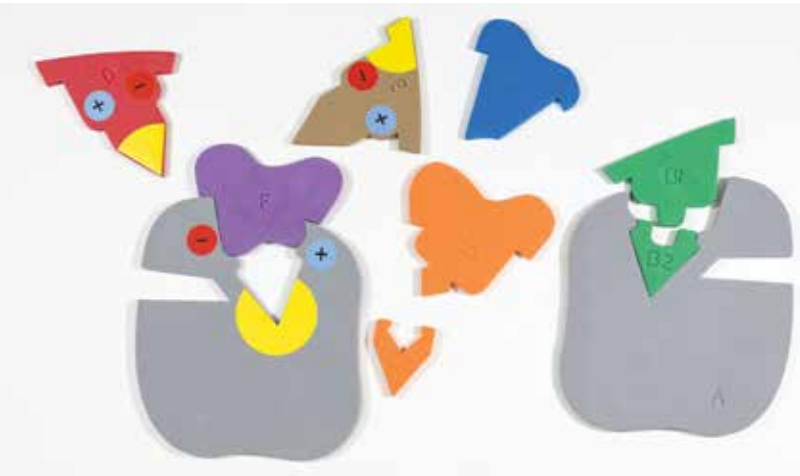
- Pairs well with the [Water Kit®](#) (page 3)

Phospholipid Modeling Set* (PLMS-01)	\$275
Phosphatidylcholine* (PLMS-A)	\$65
Phosphatidylserine* (PLMS-B)	\$63
Phosphatidylinositol* (PLMS-C)	\$68
Phosphatidylethanolamine* (PLMS-D)	\$61
Sphingomyelin* (PLMS-E)	\$67

*Not eligible for discounts

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Enzymes in Action Kit®

Take your students beyond the simple lock-and-key concept of enzyme action with this dynamic, multifunctional kit. Your students will discover the specificity of substrate binding, how enzymes catalyze either catabolic or anabolic reactions and the effect of various inhibitors on enzyme action.

• Pairs well with the Substrate Specificity Kit® (below)

12-Group Set (EAK-12)	\$144
6-Group Set (EAK-06)	\$78
3-Group Set (EAK-03)	\$42

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Substrate Specificity Kit®

Engage your students in an engineering design project with the Substrate Specificity Kit®! Using sensemaking to achieve an exact enzyme-substrate fit, your students will feel the importance of specificity a substrate must have for an enzyme active site.

• Pairs well with the Enzymes in Action Kit® (above)

Substrate Specificity Kit (SSK-01)	\$58
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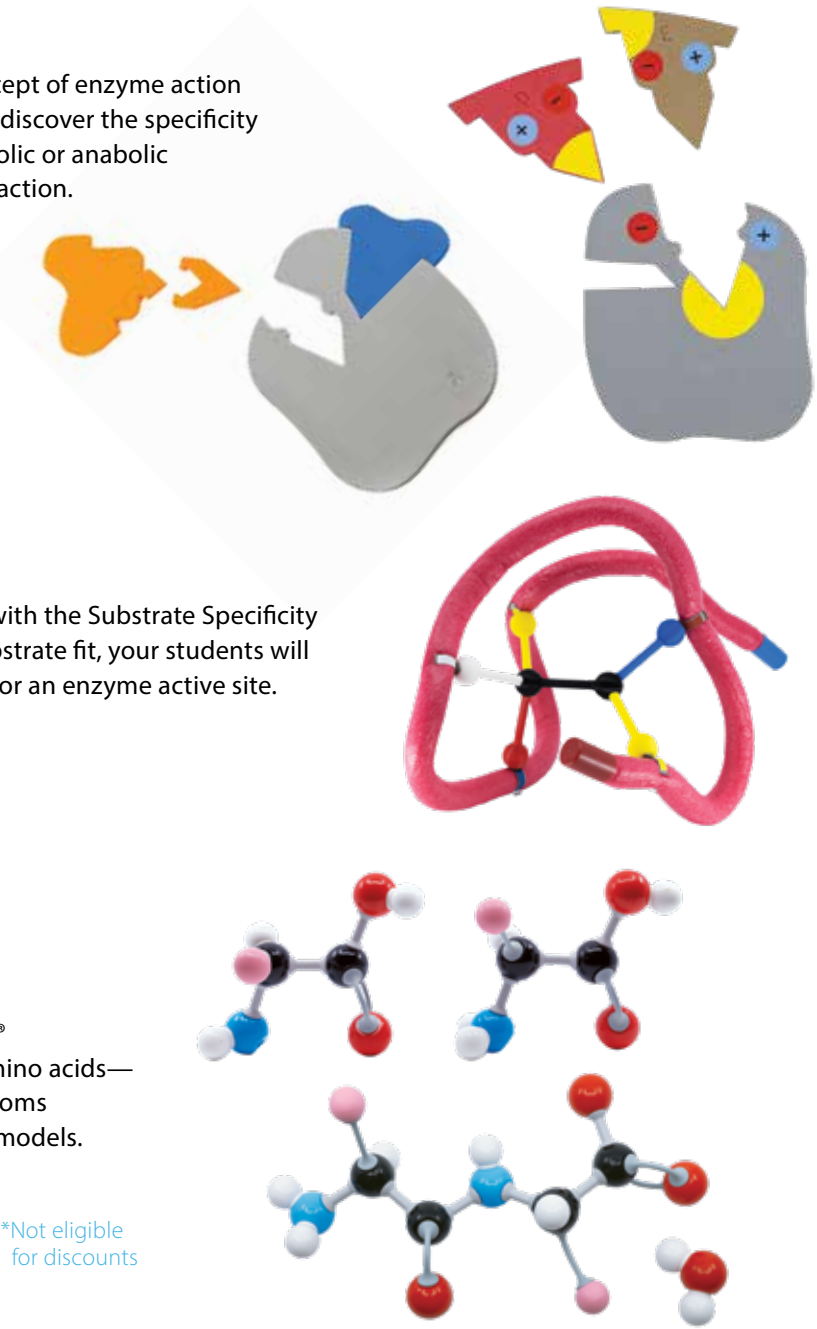
Amino Acid Building Block Models

These Amino Acid Building Block Models from Molymod® enable your students to explore the basic structure of amino acids—the building blocks of proteins. The kit contains all the atoms and bonds needed to construct two generic amino acid models.

• Pairs well with the Enzymes in Action Kit® (above)

Amino Acid Building Block Models* (AABB)	\$16.50
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Amino Acid Starter Kit®

With this captivating kit, your students will have fun exploring the primary, secondary and tertiary structure of proteins. They will learn the chemical properties and atomic structure of the 20 amino acid side chains through the kit's dual coloring scheme. With the kit's engaging, hands-on activities your students will gain the basic knowledge of protein folding before discovering the importance of an actual structure and active sites.

Project Lead the Way® selected the Amino Acid Starter Kit® for its Biomedical Science Program.

• To increase your student's understanding of proteins, see the *β-Globin Folding Kit®* and *Map of the Human β-Globin Gene®* (page 9), *Insulin mRNA to Protein Kit®* (page 8), *David Goodsell Cellular Landscapes* (page 19), and *Genetic Codon Poster®* (page 10)

6-Group Set (AASK-06)	\$438
5-Group Set (AASK-05)	\$375
3-Group Set (AASK-03)	\$231
1-Group Set (AASK-01)	\$79

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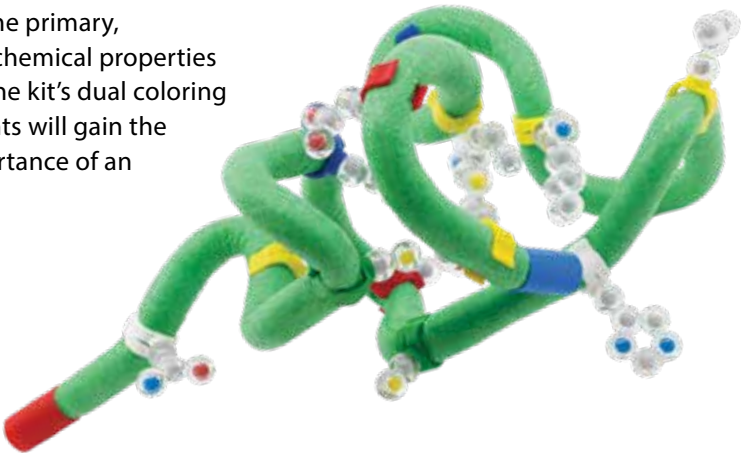
Amino Acid Starter Kit Poster®

The Amino Acid Starter Kit Poster® allows students to connect the chemical structure of each amino acid side chain as it is commonly represented in textbooks. The poster features the same dual color scheme as the Amino Acid Starter Kit®.

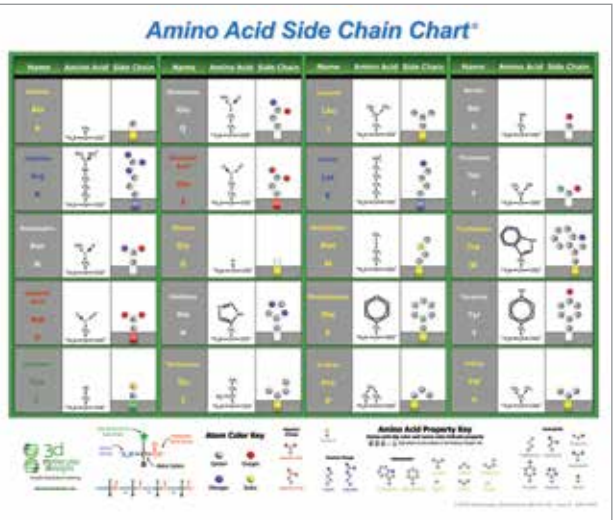
• Pairs well with the Genetic Codon Posters® (page 10)

Amino Acid Starter Kit Poster (24" x 29") (AASKP)	\$32
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"I can never again teach protein structure without mini toobers—they make it much easier for students to SEE protein folding!"



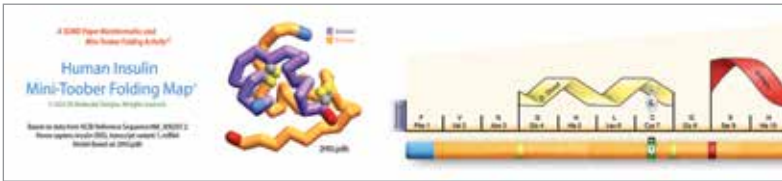
Insulin mRNA to Protein Kit®

Exploring the amino acid sequence and tertiary structure of insulin, not only highlights a real protein in your classroom but also enables your students to discover the precursor form of insulin and how it's processed into its final structure. After using the bioinformatics map to search for the nucleotide sequence that encodes the amino acid sequence of insulin, your students will fold a physical model of the 3D structure of the protein using the folding map.

- It's best if your students first use the Amino Acid Starter Kit® (page 7) before using the Insulin mRNA to Protein Kit®. Pairs well with the Insulin Model and Insulin Poster® (below), β -Globin Folding Kit® (page 9) and Genetic Codon Posters® (page 10)

6-Group Set (INSFK-06)	\$336
3-Group Set (INSFK-03)	\$189
1-Group Set (INSFK-01)	\$72

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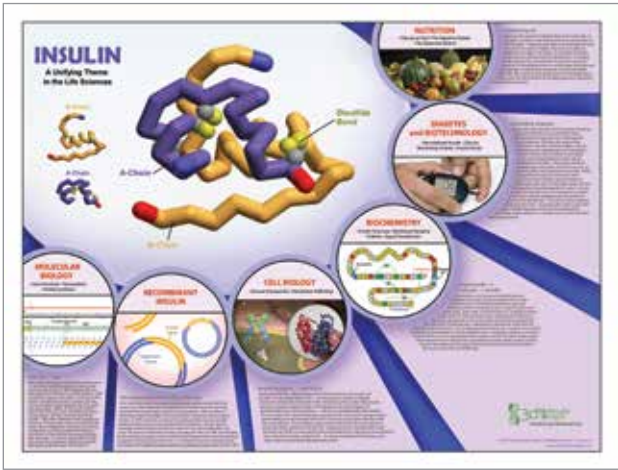


Insulin Poster®

A colorful and engaging addition to your classroom, this laminated poster highlights the broad range of biology concepts connecting to insulin protein.

- Pairs well with the Insulin mRNA to Protein Kit® (above)

Insulin Poster (24" x 18") (INSP)	\$29
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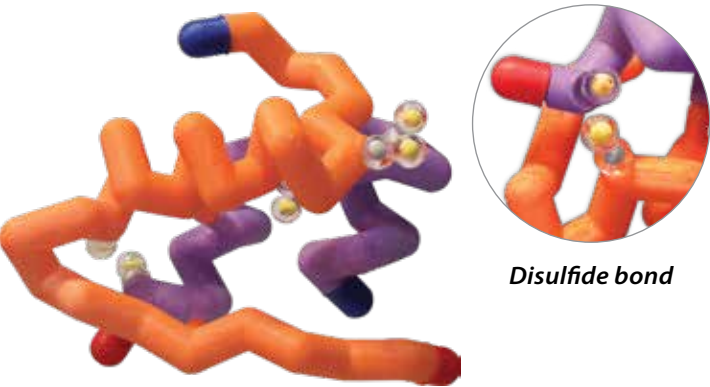


Insulin Model®

With its alpha helix and beta sheets, insulin is a perfect example of secondary structure. Our 3D print 51-amino acid peptide model features three disulfide bonds providing stability for the protein's structure. The A and B chains are stabilized by two disulfide bonds and the third stabilizes the longer A chain.

- Pairs well with the Insulin mRNA to Protein Kit® (above)

5" Plastic Model (INSPM)	\$65
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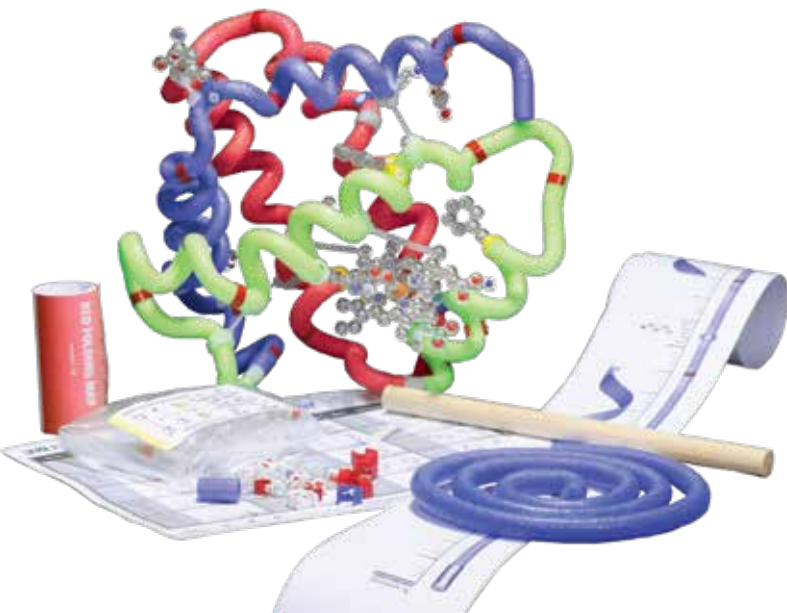
β -Globin Folding Kit®

Proteins become real in your students' hands as they fold three mini toober β -Globin fragments to discover the primary, secondary and tertiary structure in this model. Reveal the molecular structure and function relationship with oxygen transport and how a single amino acid mutation changes the shape of red blood cells.

- It's best if your students first use the Amino Acid Starter Kit® (page 7) before using this kit. Pairs well with the Map of the Human β -Globin Gene® (below)

β -Globin Folding Kit (BGFK)	\$212
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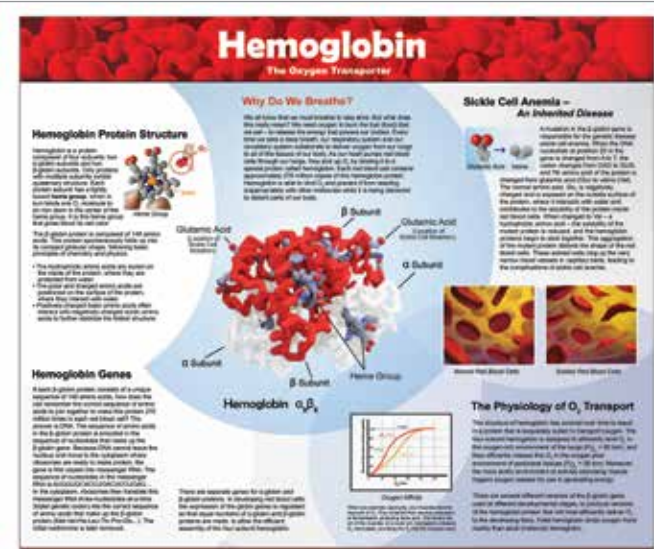


Hemoglobin Poster®

From exploring the question, "Why do we breathe?" to illustrating the structure of hemoglobin — the cause of sickle cell anemia and the physiology of oxygen transport — our colorful Hemoglobin Poster® will spark inquiry among your students.

- Pairs well with the β -Globin Folding Kit® (above) and Map of the Human β -Globin Gene® (below)

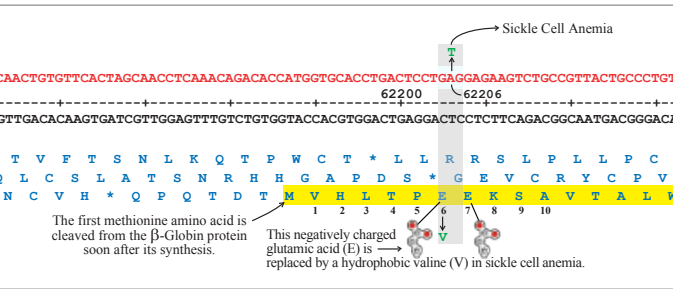
Hemoglobin Poster (21" x 22") (HGP)	\$29
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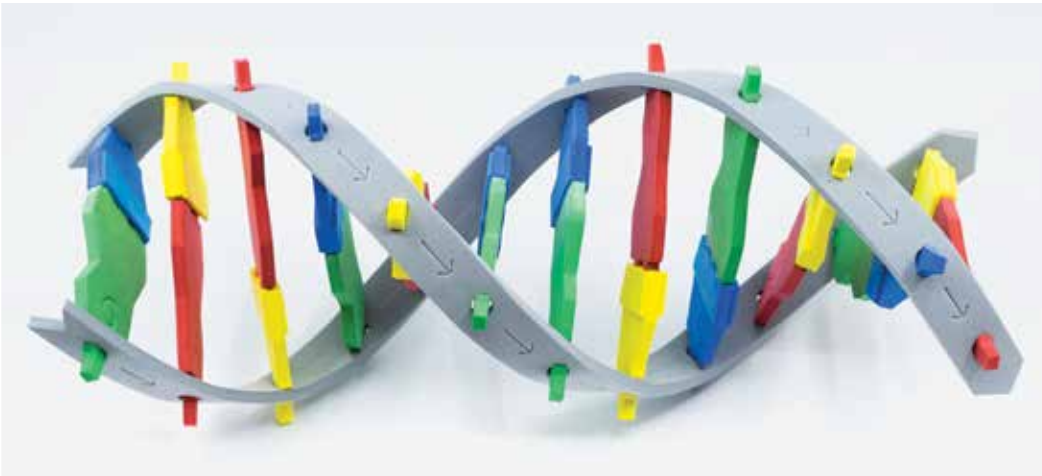


Map of the Human β -Globin Gene®

In this inquiry-based activity, your students discover eukaryotic gene features as they explore the Map of the Human β -Globin Gene®. Starting with the protein sequence, students work backward to discover the β -globin gene. One teacher's map comes with every combo, and features highlighted reading frames and mutation sites.

12 Student and 1 Teacher Map Combo (BGGM-12S-01T)	\$248
3 Student and 1 Teacher Map Combo (BGGM-03S-01T)	\$95
1 Student and 1 Teacher Map Combo (BGGM-01S-01T)	\$60





DNA Starter Kit®

This easy-to-build model is a perfect starting point for students to test their ideas and transfer their understanding to other, more complex models. Your students can explore the structure of color-coded foam DNA bases showing purines and pyrimidines connected to a continuous sugar-phosphate backbone.

2-Group Set (DNASK-02)	\$100	1-Group Set (DNASK-01)	\$54
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Demo DNA Nucleotides Kit®

Using these large-scale, color-coded foam nucleotides you can teach complementary A-T and C-G base pairings and antiparallel nature of double-stranded DNA. You can then expand your students' understanding by introducing PCR (polymerase chain reaction) and the Sanger DNA sequencing method, and much more.

- Pairs well with the *Flow of Genetic Information Kit®* (page 12), *DNA Starter Kit®* (above), and *Tour of a Human Cell®* (page 19)

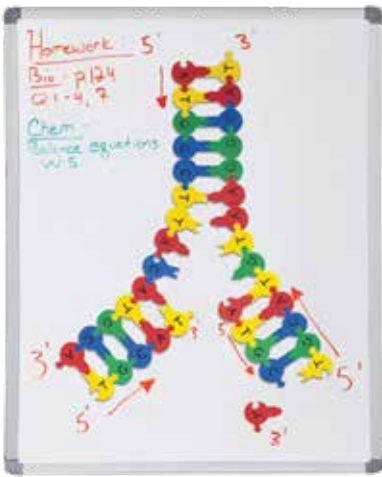
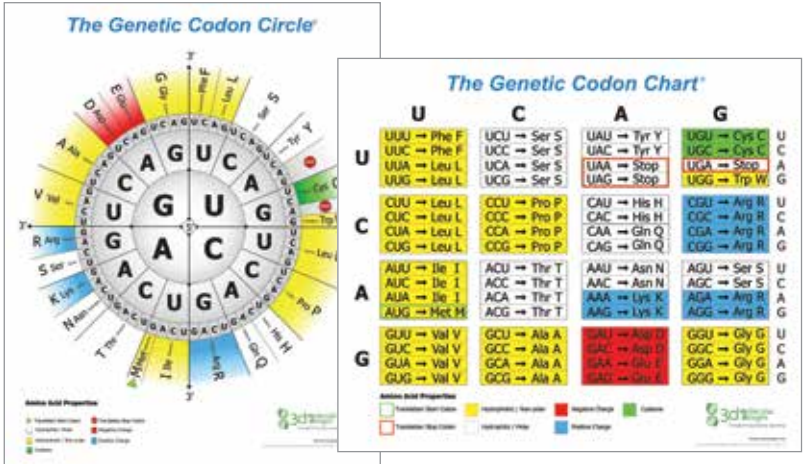
Demo DNA Nucleotides (DDNS-01)	\$54
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Genetic Codon Posters®

The Genetic Codon Chart® and Genetic Codon Circle® are good reference points of a standard color scheme when exploring our popular Amino Acid Starter Kit®, β-Globin Folding Kit® and Insulin mRNA to Protein Kit®—which help students develop a lasting understanding of the structure and function of amino acids.

Genetic Codon Chart (24" x 30") (GCCA)	\$32
Genetic Codon Circle (30" x 24") (GCCB)	\$32



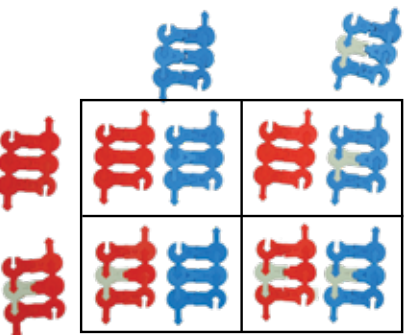
Chromosome Connections Kit®

The Chromosome Connections Kit® will enhance your classroom exploration of the cell cycle, cell division, and genetics. This kit provides more versatility for teaching genetics.

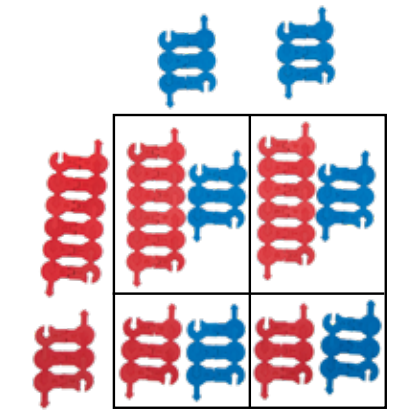
- Pairs well with the *Flow of Genetic Information Kit®* (page 12)

2-Group Set (CHK-02)	\$132
1-Group Set (CHK-01)	\$70

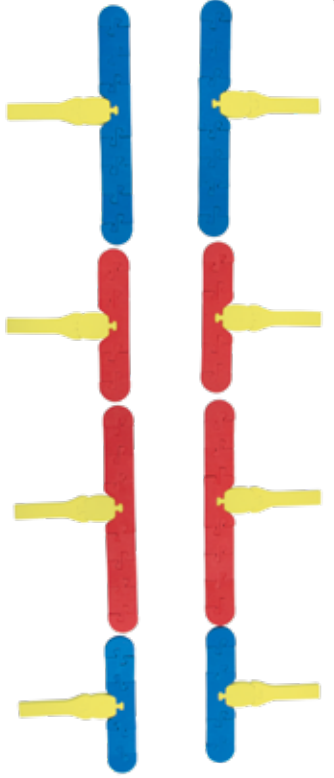
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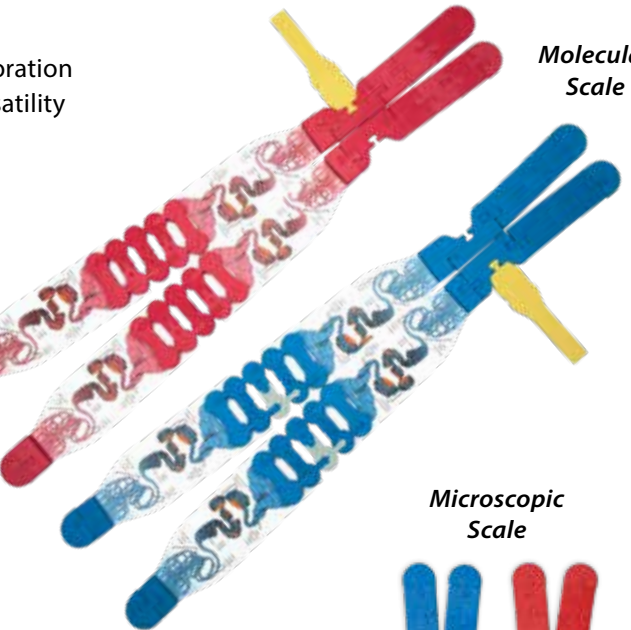
Dominant Inheritance



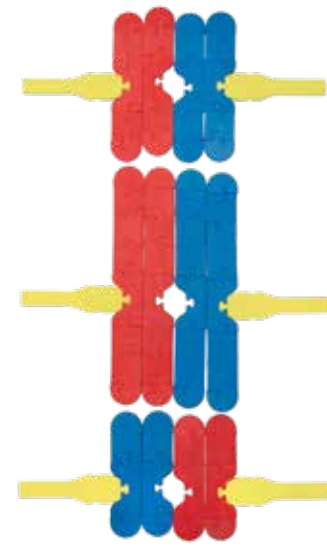
Recessive Inheritance



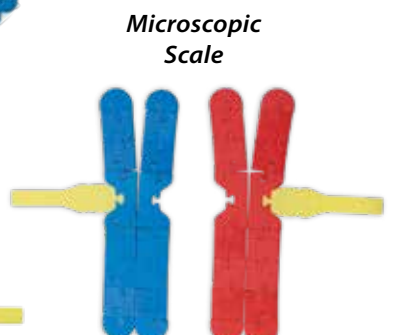
Mitosis



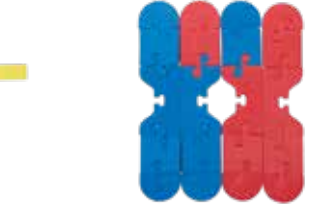
Molecular Scale



Meiosis



Microscopic Scale



Crossing Over



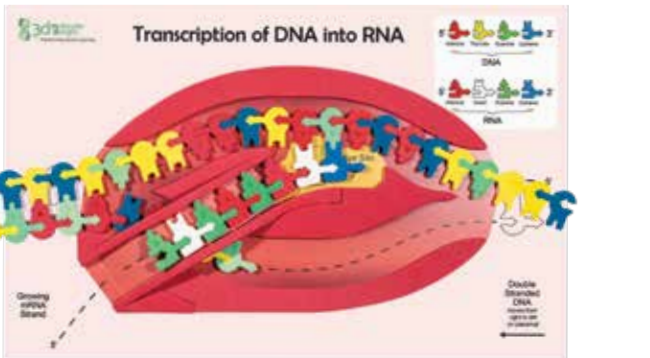
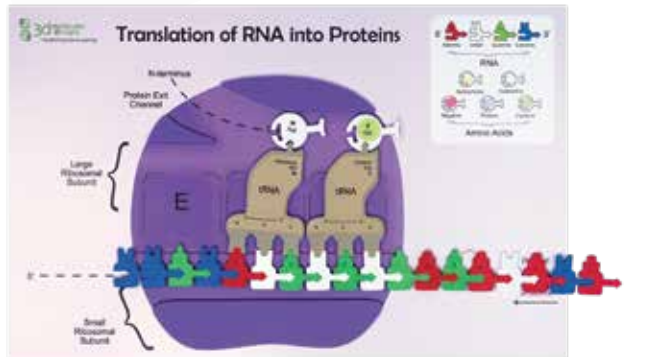
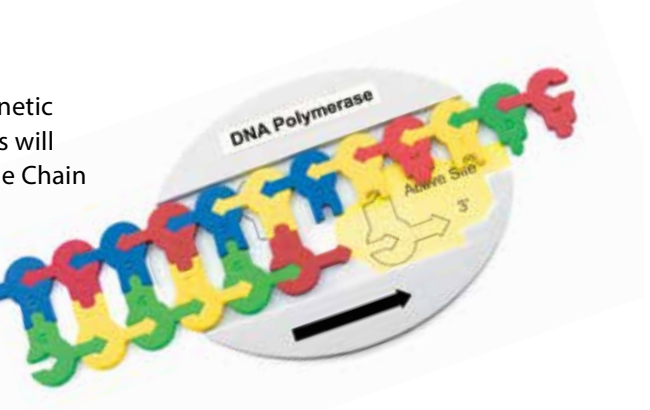
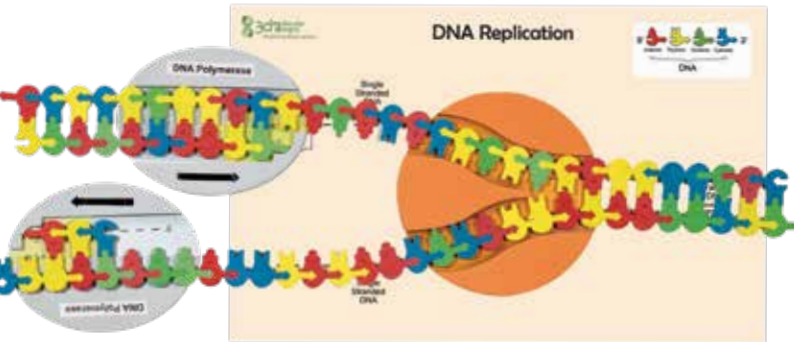
Flow of Genetic Information Kit®

Don't be surprised if someone blurts "Now I get it!" while using our Flow of Genetic Information Kit®. By getting hands-on with the nucleotides and mats, students will grasp replication, transcription, and translation/protein synthesis. Add the Side Chain Expansion Pack or use the side chains from the Amino Acid Starter Kit® to add even more authenticity and connections!

• Pairs well with the Amino Acid Starter Kit® (page 7), Dynamic DNA Kit® (page 13), and Tour of a Human Cell® (page 19)

6-Group Set (FGIK-06)	\$720
3-Group Set (FGIK-03)	\$375
1-Group Set (FGIK-01)	\$130
Additional DNA & RNA Nucleotide Set (FGIK-ANS)	\$26
Side Chain Expansion Pack (FGIK-SCEP)	\$29
tRNA Expansion Pack (FGIK-TBP)	\$20

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Dynamic DNA Kit®

The Dynamic DNA Kit® is a next-generation teaching tool that will help your students better understand how the genetic information in DNA is revealed and used. Thanks to our patented design innovations, the structure of this molecule is revealed to students through their own investigation as they unwind the double helix to model DNA replication and RNA transcription.

Project Lead the Way® selected the Dynamic DNA Kit® for its Biomedical Science Program.

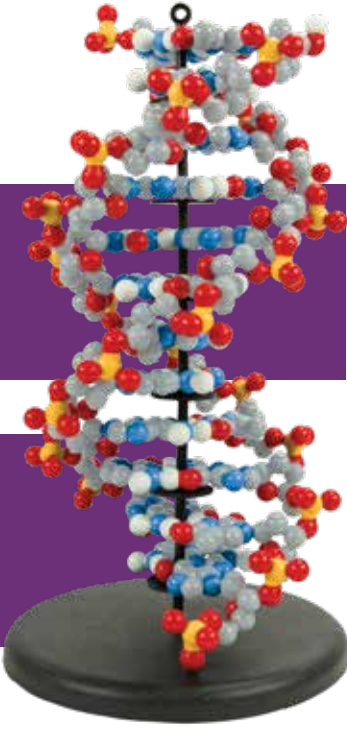
• Pairs well with the Flow of Genetic Information Kit® (page 12), and Tour of a Human Cell® (page 19)

12 Base Pairs (DDNA-12)	\$298
6 Base Pairs (DDNA-06)	\$156
2 Base Pairs (DDNA-02)	\$58
6 Sets of 12 Base Pairs (6DDNA-12)	\$1,500

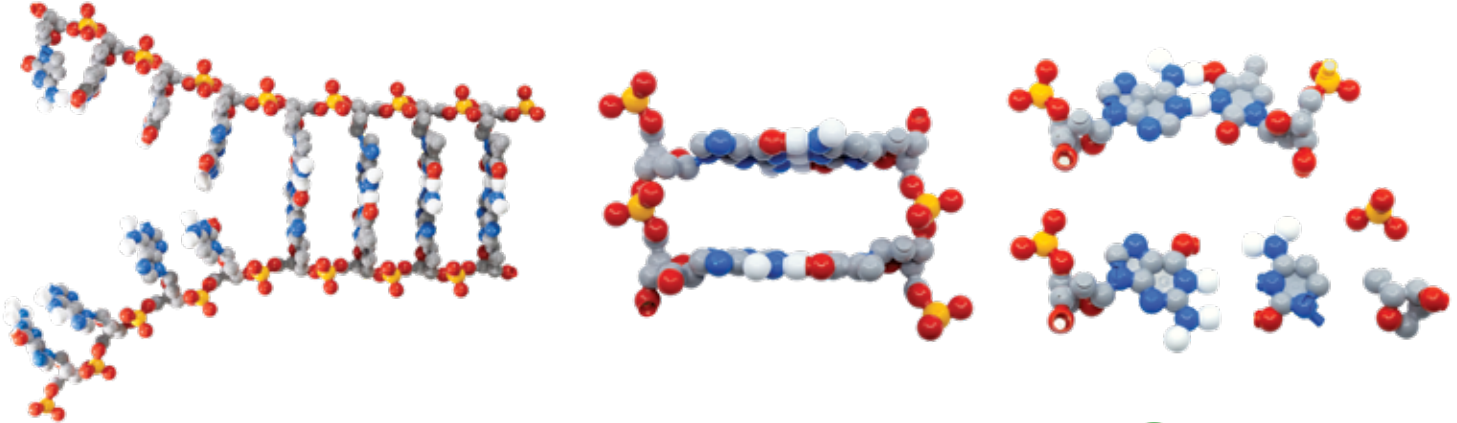
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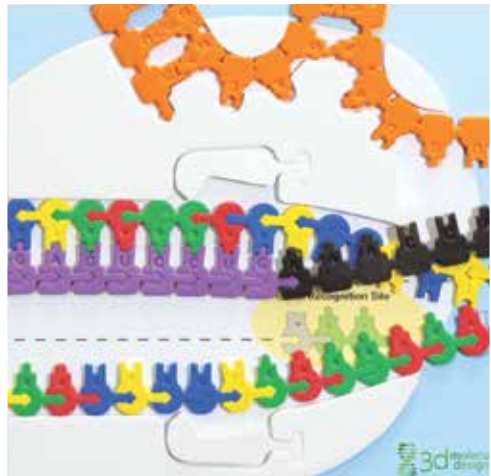
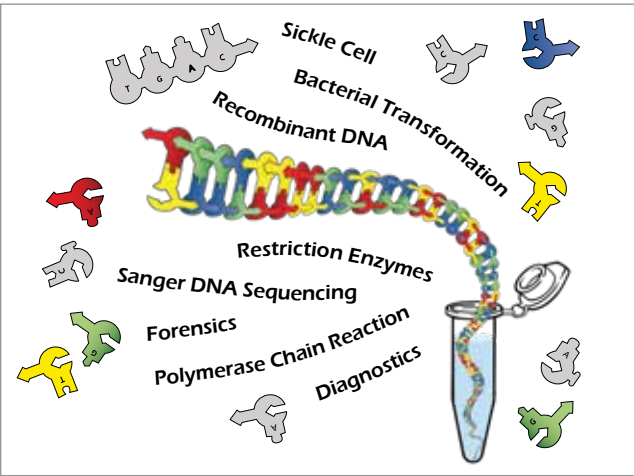
"This will hook students' attention!"

"I can use it with multiple levels to reveal higher knowledge concepts."



"This is literally the diagram from the textbooks, that students can manipulate!"





Biotechnology Kit®

Using the color-coded foam nucleotides in the Biotechnology Kit® and teacher-developed activities, students can simulate PCR using flanking primers result to copy sequences of interest, investigate how restriction endonucleases are used in DNA cloning, explore the Sanger DNA sequencing, and more!

- Pairs well with the Flow of Genetic Information Kit® (page 12), Dynamic DNA Kit® (page 13), β-Globin Folding Kit® (page 9), and Map of the Human β-Globin Gene® (page 9)

1-Group Set (BTK-01)	\$109
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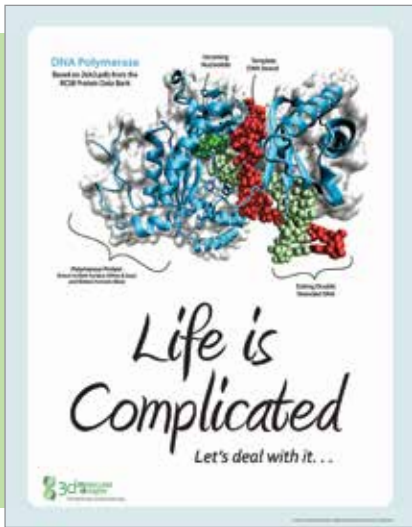


Life Is Complicated Poster®

Life is complicated. Let's deal with it! This poster of DNA polymerase, the enzyme that replicates DNA strands by assembling nucleotides in an order determined by DNA, is based on file 2oh2.pdb from the RSCB Protein Data Bank.

- Pairs well with the Flow of Genetic Information Kit® (page 12) and the Chromosome Connections Kit® (page 11)

Life Is Complicated Poster – 18" x 23" (LCP20)	\$29
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Making the Cut with CRISPR-Cas9 Kit®

Short palindromic repeats, tracrRNA, PAM sites and guide RNA! Making the Cut with CRISPR-Cas9® facilitates your students' sensemaking of this novel technology, as they manipulate colorful foam nucleotides to model how Cas9 interrogates double-stranded DNA. They'll pair guide RNA to the target sequence three nucleotides upstream from the PAM site—the molecular mechanism in which Cas9 makes the sequence-specific cut in both strands of DNA. Making the cut is the first step of this genetic engineering process, which is being tested to treat Sickle Cell Anemia.

2-Group Set (MCC-02)	\$162	1-Group Set (MCC-01)	\$88
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⚠ WARNING: CHOKING HAZARD CAUTION: Science Education Product
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.

CRISPR Adaptive Immunity Kit®

This introduction to CRISPR biology will prepare your students to use Making the Cut with CRISPR-Cas9® and understand how the Cas9 protein works. With engaging foam pieces and chenille bacteriophage genomes, your students can detect the presence of viral double-stranded DNA, express the CRISPR array to create the Cas9 proteins and the guide RNA, and more.

2-Group Set (CAIK-02)	\$132	1-Group Set (CAIK-01)	\$70
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⚠ WARNING: CHOKING HAZARD CAUTION: Science Education Product
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.

CRISPR-Cas9 Models®

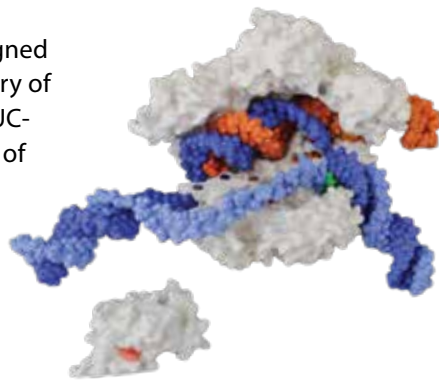
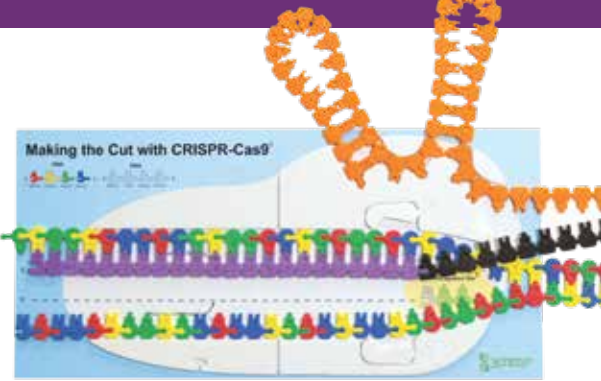
In collaboration with researchers at the Innovative Genomic Initiative (IGI), 3DMD designed this interactive and engaging model of a Cas9 model to feature the pioneering discovery of CRISPR technology by Jennifer Doudna, PhD, and her colleagues. She is a professor at UC-Berkeley and Executive Director of the (IGI). Your students can investigate components of the molecular structure as they delve into gene editing technology.

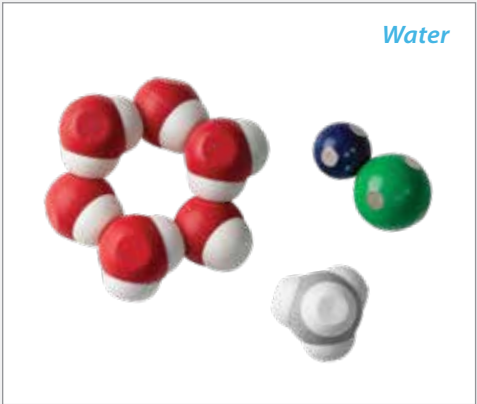
11" Nylon Model* (NCC9M-11)	\$1,450	5" Plastic & Nylon Model* (PCC9MM-5)	\$249
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*Not eligible for discounts

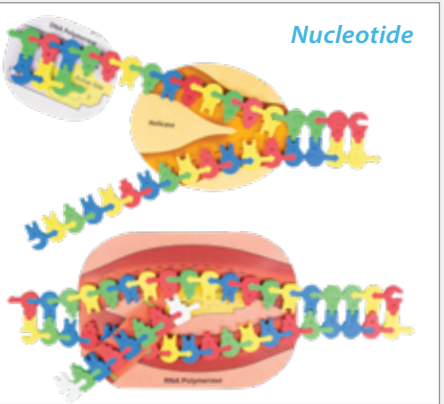
⚠ WARNING: CHOKING HAZARD ⚠ WARNING: SMALL MAGNETS CAUTION: Science Education Product
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details. HANDLE WITH CARE

"I would never try to teach CRISPR without this kit."





Water



Nucleotide



Double Helix



Membrane



Chromosome



Protein

Student Modeling Packs

Now students can explore the molecular world with their own individual modeling pack. Perfect for at-home learning, virtual classes, extended absences, or even make-up assignments, students are far more engaged, and abstract concepts become better understood through hands-on learning.

⚠ WARNING: CHOKING HAZARD **⚠ WARNING: SMALL MAGNETS**
CAUTION: Science Education Product
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.

Chromosome Student Modeling Pack (CSMP)	\$17
Double Helix Student Modeling Pack (DSMP)	\$18
Membrane Student Modeling Pack (MSMP)	\$12
Nucleotide Student Modeling Pack (NSMP)	\$18
Protein Student Modeling Pack (PSMP)	\$20
Water Student Modeling Pack (WSMP)	\$50
Student Modeling Pack Collection—Set of All 6 (SMPC)	\$79

Modeling Mini Toobers®

Versatile mini toobers provide hands-on experiences in many science disciplines. The flexible foam mini toobers have a soft wire core and are 1-meter long. One red and one blue end cap is included with each mini toober.

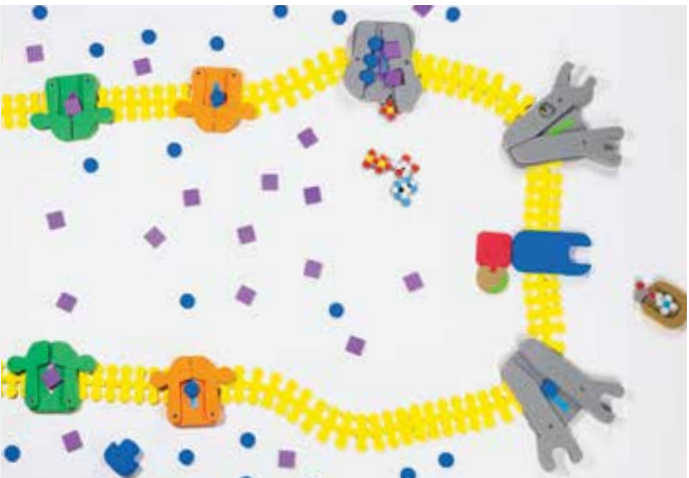
Push pins are not included.

• Pairs well with the *Dynamic DNA Kit®* (page 13)



1 Toober (MTBR-01)	\$14
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⚠ WARNING: CHOKING HAZARD **CAUTION:** Science Education Product
Please see bottom of page 23 for details.



Synapse Construction Kit®

Using the Synapse Construction Kit® students will discover how the resting potential of a neuron is established, analyze the impact of various substances such as nicotine, cocaine, sarin gas and propofol on neuronal signaling, and more!

• Pairs well with the *Neuron Modeling Kit®* (below)

6-Group Set (SCK-06)	\$798
3-Group Set (SCK-03)	\$420
1-Group Set (SCK-01)	\$142

⚠ WARNING: CHOKING HAZARD **CAUTION:** Science Education Product
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.

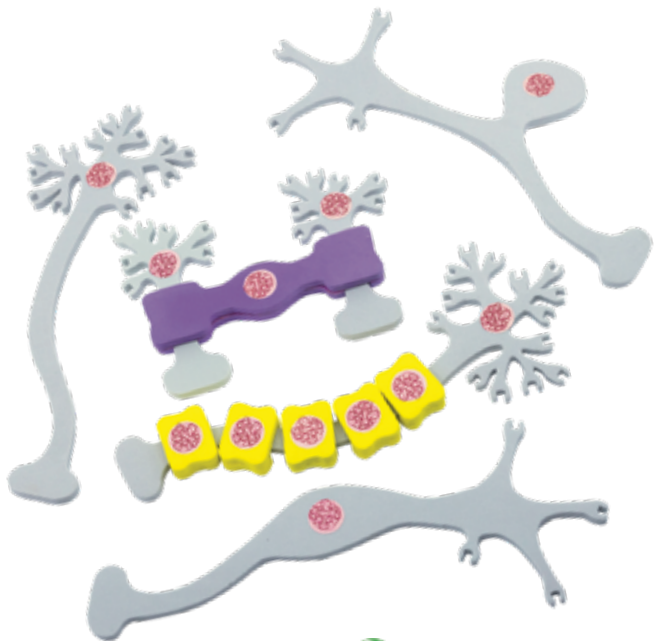
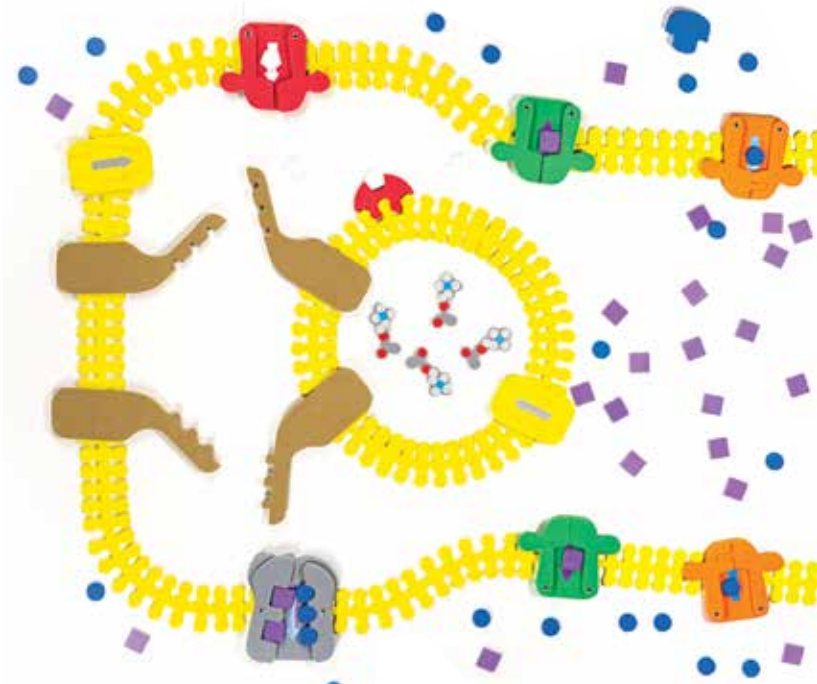


Neuron Modeling Kit®

Captivate your classroom and explore concepts with our large and small foam neuron models. Your students can use the Neuron Modeling Kit® to distinguish between multipolar, bipolar, unipolar neurons and interneurons, examine the overall effect on neuronal firing at excitatory and inhibitory synapses, and more.

Neuron Modeling Kit (NMK-01)	\$58
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⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details.





Coronavirus Models

Help your students visualize and better understand the SARS CoV-2 coronavirus with our 3D printed plastic model—available in 3 sizes and 2 color schemes! The antibody features a magnet, allowing you to model how an antibody finds and attaches to the receptor-binding domain of the spike protein, preventing it from binding to the ACE2 receptor. Mini toober RNA viral genome is provided.

9" Red & Gray (CVPM-RG9)	\$699	Classroom Set 1 Medium (6") & 6 Small (4") Models	
6" Red & Gray (CVPM-RG6)	\$299		
4" Red & Gray (CVPM-RG4)	\$99	Red & Gray (CVPM-1RG6-6RG4)	\$799
9" Yellow & Magenta (CVPM-MY9)	\$699	Yellow & Magenta (CVPM-1MY6-6MY4)	\$799
6" Yellow & Magenta (CVPM-MY6)	\$299		
4" Yellow & Magenta (CVPM-MY4)	\$99		

⚠ WARNING: CHOKING HAZARD **⚠ WARNING: SMALL MAGNETS** **HANDLE WITH CARE**
Please see bottom of page 23 for details.

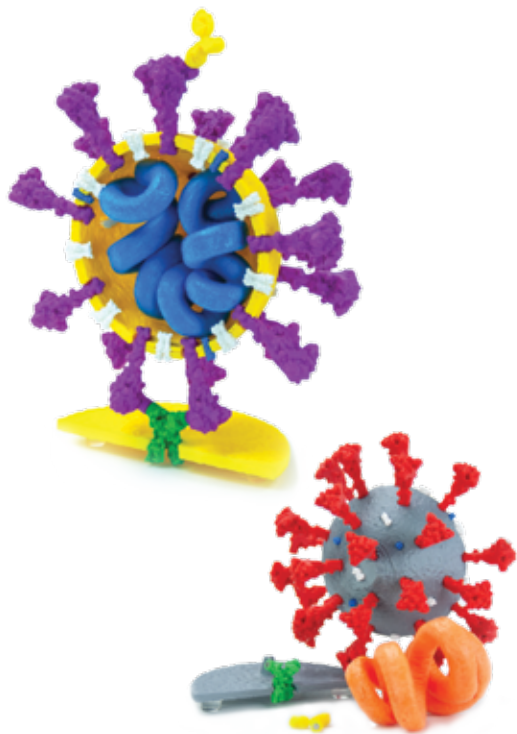
Antibody and Antigen Models

Find the right fit! As your students seek to bind the end of the antibody to its corresponding antigen, they will appreciate the importance specificity. This interactive model will enhance their understanding of the immune system, antibiotics and antivirals.

- Enhance your students' conceptual understanding of immunity and infection with multiple models. Use the Antibody and Antigen Models to actively simulate the antibody binding and specificity illustrated in the Flu Fight: Immunity & Infection Panorama® and Tour of a Human Cell® (page 20)

(1) 8.5" Plastic Antibody & (2) 3.5" Antigen Models (ANTPM)	\$80
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⚠ WARNING: CHOKING HAZARD **⚠ WARNING: SMALL MAGNETS** **CAUTION: Science Education Product**
⚠ WARNING: CALIFORNIA PROP 65. Please see bottom of page 23 for details. **HANDLE WITH CARE**

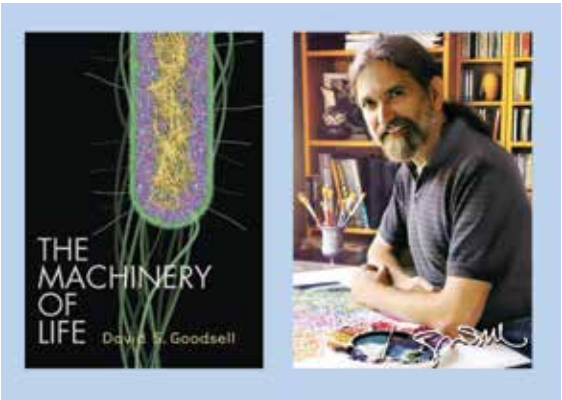


David Goodsell Cellular Landscapes

David Goodsell, PhD, scientist, author and artist of all things small, creates cellular landscapes that accurately illustrate the size, shape, and distribution of proteins in their natural environment of the cell.

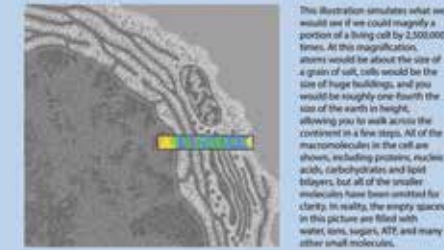
These unique images connect the molecular world, inferred by X-ray crystallography and NMR spectroscopy, with the cellular world, observed by light and electron microscopy.

These laminated prints of Goodsell's stunning watercolor paintings illustrate biology in a dimension not seen in other instructional tools.

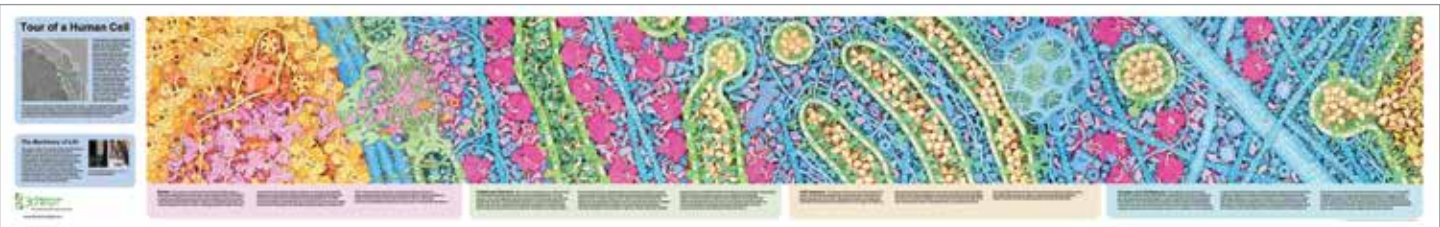
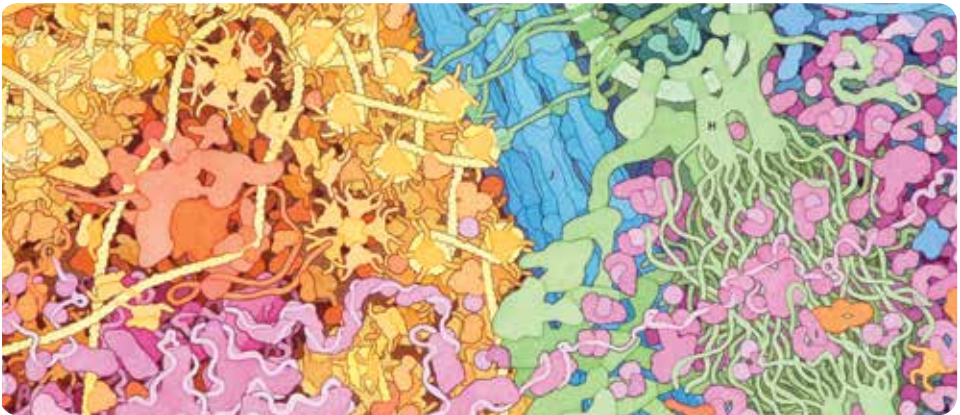


"So many topics can be addressed using the grand panorama—I can't imagine teaching cell biology without it!"

Tour of a Human Cell



The narrow strip is taken from a plasma cell (shown above), a cell from the blood that is dedicated to the production of antibodies. The entire process of antibody production is shown, starting from the gene in the nucleus, proceeding to synthesis in the endoplasmic reticulum, continuing to processing in the Golgi, and finishing with transport and secretion at the cell surface.



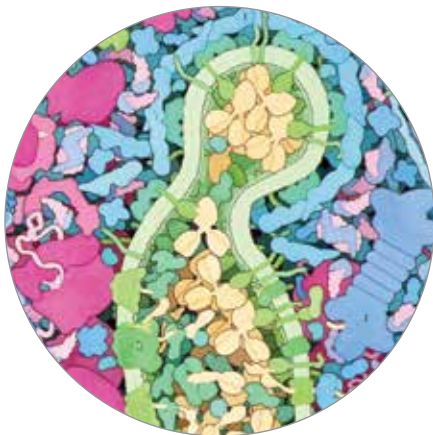
Grand Panorama: 11 feet x 23"; Panorama: 70" x 11"

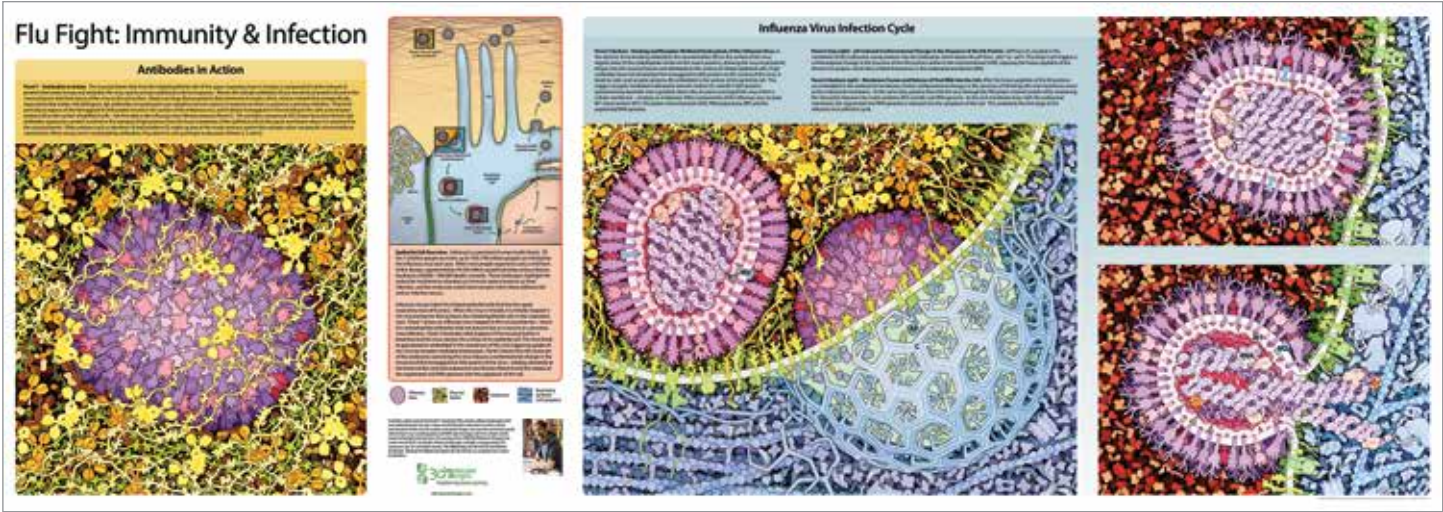
Tour of a Human Cell®

You could call The Tour of a Human Cell Panorama® "Your flu shot in action!" or "The Flow of Genetic Information." Starting in the nucleus, your students can follow the Tour as it illustrates transcription. Then, they follow mRNA through the nuclear pore to ribosomes in the endoplasmic reticulum where the sequence is translated into antibodies. From there, your students follow the antibodies — in transport vesicles — to the Golgi, and then it's on to the cytoplasm where kinesin pull the vesicles along microtubules to the cell membrane. The vesicle membranes merge with the cell membrane and antibodies are released!

Tour of a Human Cell Grand Panorama – 11' x 24" (DGTHC-GP)	\$156
Tour of a Human Cell Panorama – 70" x 11" (DGTHC-P)	\$77
Panorama Poster Combo 1-Grand Panorama and 6-Panoramas (DGTHC-01GP-06P)	\$449

"The complexity of a cell is very visible!"





Flu Fight: Immunity & Infection Panorama®

These cellular, watercolor landscapes will take your students from infection of the ciliated epithelial cells that line the upper respiratory tract, through virus neutralization by antibodies in the mucosal barrier. Illustrate your discussions about infectious disease and immunity with this beautiful, accurate panorama that identifies key proteins, other molecular structures and explains their functions!

See our *Antibody and Antigen Models* on page 18! Enhance your students' conceptual understanding of immunity and infection with multiple models. Use the *Antibody and Antigen Models* to actively simulate the antibody binding as illustrated in the *Flu Fight Panorama*®. Also see *Tour of a Human Cell*® on the previous page

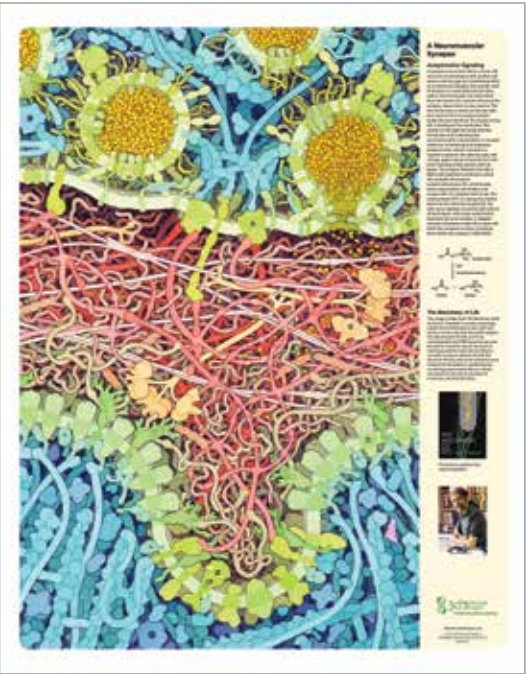
Flu Fight: Immunity & Infection Panorama 23" x 66" (DGFFP)	\$86	Model & Poster Combo Flu Fight: Immunity & Infection Panorama – 23" x 66" & 6-Antibody and 12-Antigen Models (DGFFP-01-ANTPM-06)	\$456
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Neuromuscular Synapse Poster®

The Neuromuscular Synapse Poster® illustrates the molecular interactions found at the neuromuscular synapse — where vesicles filled with the neurotransmitter, acetylcholine, are fusing with the membrane of the pre-synaptic neuron.

Pairs well with the *Neuron Modeling Kit*® (page 17) and *Synapse Construction Kit*® (page 17)

Neuromuscular Synapse Poster – 23" x 30" (DGNSP)	\$36
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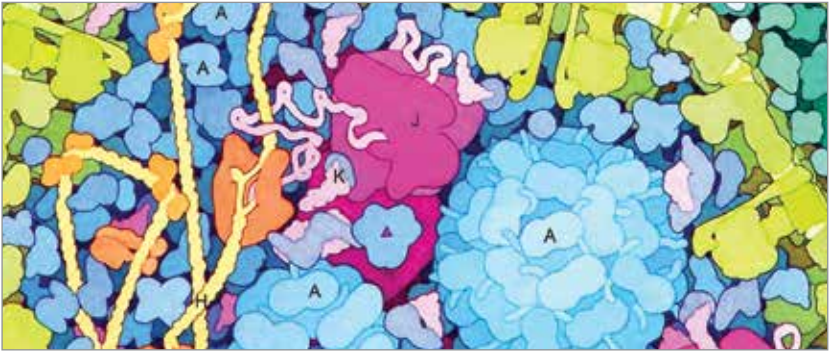


Mitochondria Poster

In the Mitochondria Poster® your students will see the large protein complexes of the electron transport chain which create the electrochemical gradient that powers ATP synthase to build ATP.

Pairs well with the *Neuron Modeling Kit*® (page 17) and *Synapse Construction Kit*® (page 17)

Mitochondria Poster – 23" x 30" (DGMP)	\$36
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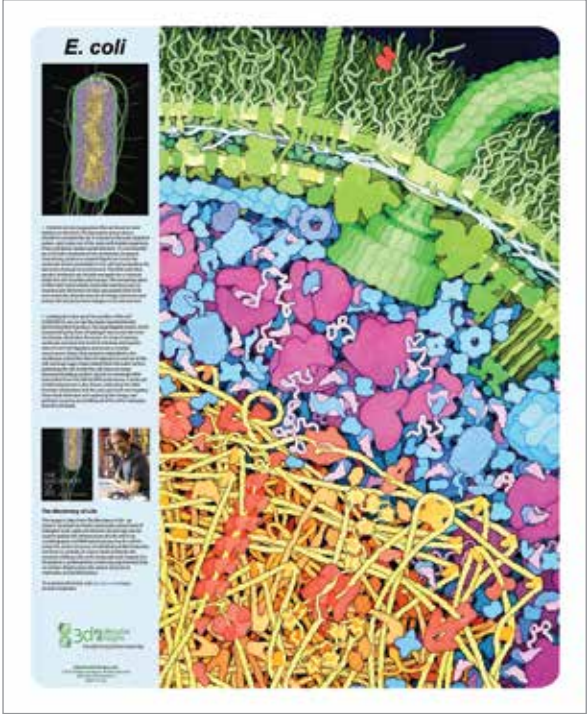
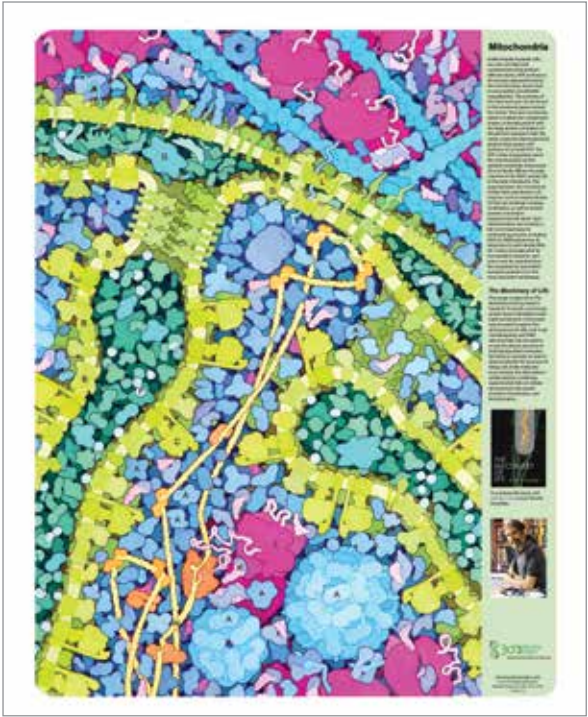
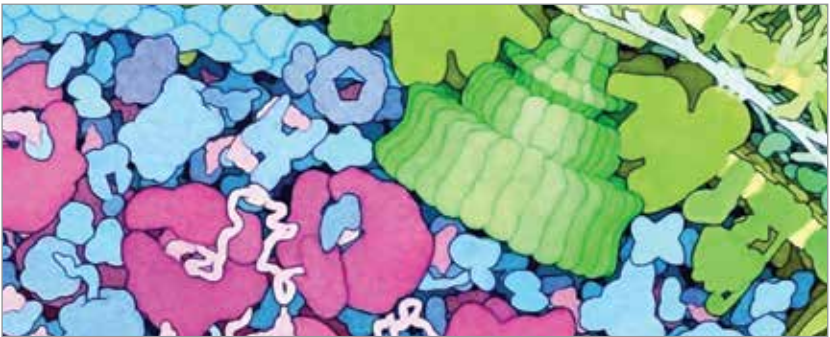


E. coli Poster

In the E. coli Poster®, the molecular complexity of this bacterial cell is emphasized in this image and features a large flagellum, the motor proteins that power its rotation, and more.

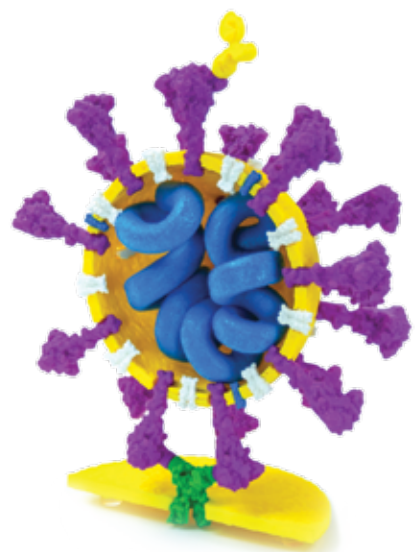
Pairs well with the *Neuron Modeling Kit*® (page 17) and *Synapse Construction Kit*® (page 17)

E. coli Poster – 23" x 30" (DGECP)	\$36
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Teachers Are Our Biggest Asset!

We love working closely with educators passionate about modeling with their students. Apply to become a **3DMD Model Teacher**® to share innovative strategies with other teachers at state and regional conferences, participate in field tests and advisory boards, and help develop new classroom activities with us! Attend a future *Modeling the Molecular World* course to become eligible for the program and dive deep into the molecular world.



The Power of Modeling

Physical and conceptual models provide experiences for inquiry and provoke student questions. These questions invite conversations, revisions, and investigations. Grappling with complexity through modeling can make the difference between a student struggling and that ear-to-ear grin when they “get” it!

Models give words meaning.

We have seen firsthand the power of three dimensional models in making complex molecular concepts, not just accessible, but exciting! Learning how to engage students in modeling changes teachers. And when teachers use models in the classroom, learning is truly transformational.



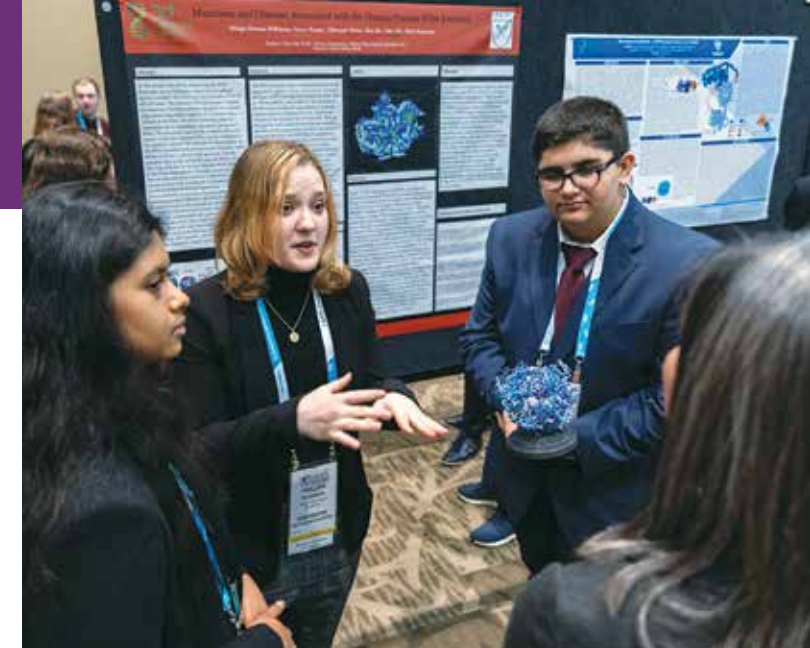
SMART Teams Students Modeling A Research Topic

Nurture student interest in the molecular world by starting a **SMART Team**!

The goal of **SMART Teams** is for students to use modeling activities and online resources to discover basic molecular concepts through research on protein structures. We will work with your team to 3D print their researched protein, which will help them tell their structure-function story in a capstone event presentation. Your role is to guide students on this journey while letting their natural curiosity lead them to scientific discovery.

Your registration gives you instant access to:

- All 4 phases of the **SMART Team** modeling program
- Modeling resources, including a molecule builder and Jmol explorer page
- Access to new and archived protein stories
- 3DMD staff assistance with abstract writing, Jmol modeling, and poster content
- A four-color 3D print of your model design



“It has come to show me that even a young high school student can become a member of the scientific community!”

Register your **SMART Team** at
3dmoleculardesigns.com/smart-teams

Unlock the Future of Science Education with 3D Molecular Designs’ Digital Services!

In 2024, 3D Molecular Designs will launch new digital resources and enhancements to our kits and models accessible through our website. Seamlessly integrating with our acclaimed interactive kits and models, our platform empowers educators and engages students, ensuring a deeper understanding of complex scientific concepts.

With captivating molecular story presentations, cutting-edge augmented reality (AR) capabilities, comprehensive lessons, engaging videos, and expert-led webinars, we’re reshaping the way biomolecular science is taught. Plus, we provide valuable teacher resources for streamlined lesson planning and hands-on computer-based activities.

Join our newsletter to get updates on when these resources will be available.



3D Molecular Designs utilizes magnets in many products to help students understand inter- and intra- molecular forces in the molecular world. In compliance with the Consumer Product Safety Improvement Act of 2008—and California Proposition 65—3D Molecular Designs adds these warnings to our products and encourages the safe use of our products in classrooms and other science education settings. Our kits and models are science education products, not toys. Please contact us if you have any questions or concerns.

⚠ WARNING: SMALL MAGNETS

This product contains small magnets. Swallowed magnets can stick together across intestines causing serious infections and death. Seek immediate medical attention if magnets are swallowed or inhaled.

⚠ WARNING: CHOKING HAZARD

This product contains small parts and should be kept out of the reach of children under the age of 3, because the parts or their pieces may present a choking hazard to small children.

⚠ WARNING: CALIFORNIA PROPOSITION 65

This product contains or may contain chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information visit www.P65Warnings.ca.gov.

CAUTION:

This is a science education product, not a toy. It is not intended for children under 8 years old.

Summer Courses



Modeling the Molecular World

Join us — the first and only team to put protein models in the hands of students — for a week of modeling! You will:

- Hear powerful molecular stories, told by master storyteller, Tim Herman, PhD.
- Learn tips and techniques from experienced teachers who have fostered student modeling, discovery and inquiry in their classrooms.
- Become part of a community of outstanding educators utilizing 3DMD's kits and models in a variety of courses.
- Learn how to incorporate modeling with NGSS standards.
- Leave with an introductory set of innovative materials, including a Water Kit®, Amino Acid Starter Kit®, Dynamic DNA Kit®, a cellular landscape by David Goodsell and more.

Following participation in this *Modeling the Molecular World* course, you'll be eligible to participate in 3D Molecular Designs' advanced courses, Model Teacher Program, and research project advisory groups!

Session 1: July 29–August 2

Session 2: August 5–9

Modeling Infection & Immunity: From Molecules to Cells

The molecular mechanisms how viruses infect our cells, and the counter measures taken by our immune system to prevent infection, are complicated topics. But fortunately, models give words meaning.

Join us in Milwaukee next summer for a five-day summer workshop for science educators focused on the science of infectious diseases. This workshop uses dynamic interactive models to explore virus life cycles, molecular mechanisms of the immune system and the critical role of vaccines in preventing past viral pandemics and the new vaccine platforms that promise to limit future pandemics. We can't wait to model with you!

**Modeling the Molecular World is a prerequisite for this course.*

***Supported by NIH NIGMS SEPA Award Number R25GM146236.*

June 24–28, 2024



3D Print for the Biosciences Classroom

Wondering how to incorporate 3D printing in your classroom? This course is for you! You will:

- Learn Jmol, a free molecular visualization program, for designing physical models of proteins that can be 3D printed.
- Return to your students with a physical model and validated 3D printed files.
- Feel confident exploring software and choosing instructional materials on designing for 3D printing.
- Receive a digital notebook of resources.

The 3D Printing Course is open to current and past participants of the Center for BioMolecular Modeling (CBM) summer courses. The CBM merged with its close partner organization, 3D Molecular Designs, LLC, October 1, 2022.

One-Day Short Course

Following *Modeling the Molecular World*

Session 1: August 3

Session 2: August 10

Applications open Nov. 1, 2023
Watch 3dmoleculardesigns.com for details

