

Do-It-Yourself DNA Discovery Kit

For Teacher: Setting up the Kits, and Inventory for Students

Be sure to run off the sheets using paper colored as indicated below. Then assemble into packets for each part.

For the **Work/Study Plan**, you may want to insert (or provide) specific page numbers from your text. The **DNA Unit Objectives** should be modified (items removed or added or changed) as reflected in your text, standards and approach.

MATERIALS: You will need to provide scissors and paste (or glue sticks) or tape for all students. Once the pieces are all cut out (for kits #2 and 3), they can be placed in appropriately labeled envelopes, and these placed in a larger envelope. At the end of your unit, collect them so future classes (in future years) won't have to do so much cutting out. Include an inventory strip for each kit (shown below)

For kit #1, the cutting out and pasting-in are important kinesthetic tools to help instill the basic structures of nucleotides, so that kit should be cut out and pasted by all students every year.

Part I: KNOW YOUR NUCLEOTIDES: Nucleic Acid Structure

- 1.1 Preparation and Instructions for Building Nucleotides from sub units (text: 1 page, **white**)
- 1.2 Worksheet: Nucleic Acid Structure (text and a little artwork: 1 page, **pink**, for pasting or drawing on)
- 1.3 Models of Nucleotide Sub-Units (artwork for cutting out and pasting onto Worksheet: 1 page, **white**)

Part II: REPLICATION IS REFRESHING: How DNA Duplicates

- 2.1 Preparation and Procedures (text: 1 page, **white**)
- 2.2 Model of DNA Molecule (artwork for cutting out: 1 page, **white**)
- 2.3 DNA-Nucleotides (artwork for cutting out: 1 page, **pink**)

Part III: PROTEIN SYNTHESIS SATISFIES: How DNA Makes It

- 3.1 Preparation and Procedures (text: 2 pages, **white**, back-to-back)
- 3.2 RNA Nucleotides and Models of Ribosome Surface and Nuclear Membrane (artwork: 1 page, **blue**)
- 3.3 Transfer-RNA Molecules (artwork: 1 page, **yellow**)
- 3.4 Amino Acids (artwork: 1 page, **green**)

INVENTORY: Do It Yourself DNA Kits #2 & 3

INVENTORY: KIT #2: (Replication)

2 **White** strands ("unzipped" model of DNA ladder)

26...**Pink** DNA nucleotides ("L"-shaped units):

3 right A's,	7 left A's	2 right G's,	1 left G
2 right C's,	2 left C's	7 right T's,	2 left T's

INVENTORY: KIT #3: (Protein Synthesis)

13 **Blue** RNA nucleotides ("L"-shaped units):

3 A's, 2 C's, 2 G's, and 6 U's

- 1 **Blue** "Nuclear Membrane" strip
- 1 **Blue** "Ribosome Surface" strip
- 6 **Yellow** transfer-RNA (t-RNA) molecules (all different)
- 6 **Green** Amino Acids (all different)