

## SAY IT WITH DNA: PROTEIN SYNTHESIS WORKSHEET: Practice Pays

Having studied the process by which DNA directs the synthesis of proteins, you should be ready to decode some DNA "secret" messages. To do this, you must follow the procedure of protein synthesis as this is taking place right now in your cells; no short cuts! Practice these steps by following and finishing the **partially solved message** below.

STEP 1: "Build" the mRNA molecule, matching the RNA nucleotides to the DNA nucleotides properly, letter by letter.

(For purposes of simplicity, it will be assumed that this mRNA is bacterial; there are no introns to cut out!)

STEP 2: Figure out the tRNA triplets (codons) which would fit the mRNA triplets (letter by letter).

STEP 3: Look up each tRNA codon in the **tRNA Dictionary** (below), and find the corresponding symbol and amino acid abbreviation for that codon. Record that one-letter symbol (and its amino acid) below each codon. "Spc" = "space". If you have done this correctly, the symbols should spell out a meaningful message in English.

Remember, C always pairs with G, G always pairs with C, A pairs with T (in DNA) or U (in RNA). Thairs with A, and U

15. In your picture above, circle an RNA nucleotide.
16. What are the four steps of transcription?