

Life Science Students:

The last section 3-4 of the worksheets does a POOR job of explaining enough about how DNA and RNA are different. So some of the questions that refer to the chart might be confusing to you. If you cannot figure it out, then you may leave it BLANK until we talk Monday. For those who want to try to answer them, here is some helpful additional information. Also, we will watch together in class some excellent animations to help you visualize how the parts and processes work.

OK HERE GOES THE EXPLANATION ABOUT DNA TO RNA COPYING:

As you already know, DNA is a long molecule with two sides that look like a ladder with rungs in the middle. On each inner side of a DNA molecule are the chemical letters A, T, C, G. in a specific order. These stand for the chemicals: Adenine, Thymine, Cytosine, Guanine. Along the length of the DNA molecule, these chemicals make up the CODES for the form and function of an organism. For example, the code along a section of DNA might be: ... ATTGCAATCCGAG The different ORDERS or SEQUENCES of the chemical letters form different codes.

In the middle of the ladder-like DNA form, the two sides of the ladder are bound or hooked together like ladder rungs. This is because the A, T, C, G chemicals link or bind across the two sides of the ladder as pairs. You learned already that the way they bind is A-T, and C-G. the ladder looks like this:

A-T
C-G
G-C
A-T
T-A
etc

RNA USES A DIFFERENT CHEMICAL LETTER:

When a strip of Messenger RNA coding is made from the DNA code, a SPECIAL chemical letter REPLACES the Thymine in the new RNA.

In RNA, the T or Thymine is replaced with the chemical URACIL symbolized by U. So in an RNA code strip you will NOT see any letter T, since it has no thymine.

When a strip of Messenger RNA is copied from the DNA code strip, instead of -A- matching with a -T-, it matches with a -U- in the new RNA.

So, when the section 3-4 worksheet asks the question:

1. If the DNA sequence of a gene was TACTTACCGAGCTAGACT, then what is the sequence of the messenger RNA?

Here is the answer. The RNA sequence will match up as shown below. I spaced the codes strips out so you can see the upper to lower matches easier.

If the DNA = TAC TTA CCG AGC TAG ACT
Then RNA = AUG AAU GGC UCG AUC UGA

Notice how in the above example the letters pair up or match top DNA to bottom RNA as T-A, A-U, C-G, T-A, etc....

IF THIS JUST CONFUSES YOU, DO NOT WORRY. LEAVE THOSE QUESTIONS BLANK and we will work on them tomorrow. We will also discuss the RNA code to PROTEIN chart :-)

Prayerfully,

Mr. Galloway BS, M.Div.