DNA, RNA and protein formation
Gene to protein: An Overview

Commentary:
To make a particular protein in the cell the relevant gene is first switched on in the DNA. A working copy of the gene called messenger RNA is made. This copying process is called transcription. Next the information in the messenger RNA is acted upon to produce a protein. This step is called translation since it involves translating the four letter code in DNA or RNA into the sequence of amino acids in a protein. Let's look at these steps in more detail, but first a look at RNA. To understand how a working copy of the gene is made we need to be familiar with the structure of RNA. Unlike DNA, RNA is just a single strand of nucleotide units. In DNA the sugar is deoxyribose. In RNA it's ribose. As for the bases, although three are identical: adenine, guanine and cytosine, the thymine in DNA is replaced by uracil in RNA. Uracil is very similar to thymine. It always pairs with adenine, that is, it obeys the same base pairing rules.

Norman Cohen:
Okay, so specific base pairing has cropped up again. You've already seen how important it is in the structure of DNA and the replication of DNA, and now you'll see how vital it is in the production of messenger RNA in a process known as transcription.