DNA, RNA and protein formation
Transcription: writing the message

Commentary:
When transcription starts a small section of DNA is unwound. One of the two unwound strands acts as a template for making the message. The messenger RNA is built up one nucleotide at a time, according to the familiar base pairing rules. A on the DNA pairs with U on the RNA, G pairs with C, T pairs with A, and so on. The result – a message with a base sequence complementary to the template strand of the DNA. This messenger RNA will eventually be used to direct the formation of a protein.

Norman Cohen:
You might have been wondering how the cell uses linear information, the bases in messenger RNA, to produce something obviously three-dimensional, a protein, when in fact the problem isn't quite as complicated as it might seem. You see, in every protein there are one or more polypeptide chains, linear structures that run throughout the three-dimensional structure of the protein. Now what this means can be seen more easily on a simpler model. This is a large scale model of a polypeptide. It's all twisted up here but in fact, in essence, it's a linear structure. Now this represents a fairly short polypeptide. Real polypeptides generally have many more units than this, and each unit is an amino acid, here represented by a ball, each ball is an amino acid. Now with polypeptides you've twenty different types of amino acid, so the problem reduces to this. How does the cell use linear information in messenger RNA, which has four types of unit, the four different bases, to produce this, a linear polypeptide with twenty different types of unit, with twenty different amino acids?