Laboratory 11
Molecular Genetics
Student Tip Sheet

Do not be intimidated by lots of new terminology and processes in this, the most interesting, section of biology. Almost daily there is information in the media that refers to DNA technology. Now you have a chance to begin to understand what it is all about! You must begin with the structure of the DNA helix. Your teacher will have some assignments that will allow you to assemble some sort of model either from a commercial puzzle kit or perhaps using some items from home. One way or another you will quickly see how the basis of life, as we know it, is structured. Follow the instructions one step at a time and soon you will be a pro. This whole section is based on the DNA helix so make certain that you have a good understanding before you continue. Do remember that the basis of the DNA helix is the nucleotide, and this must be constructed first.

The next procedure in this lab is the process of protein synthesis. Again your teacher will have some sort of visual aid to help with the explanation. There are many new terms included here but soon the pattern will be clear. One step in this process will lead directly to the next, so if you are correct in the beginning then all the rest will be clear. It is almost like falling down the steps…once you begin there is no turning back!

Check your work when you finish transcription to make certain that your pairings are accurate. Did you assemble the amino acids into protein? It is almost miraculous to think that all living things undergo this process to live on our planet. Wonder if other forms of life have a different scheme?

The lab manual gives an excellent introduction to the new separation technologies. Gel electrophoresis used to be available only in the most sophisticated of laboratory settings, but now the supplies and equipment are almost commonplace. Do not be intimidated by this technique. Enjoy the opportunity to learn the basis of current cutting-edge technology.