Access to Higher Education Unit

This unit forms part of an Access to HE Diploma. If delivering the graded version of this unit, please refer to the Provider Handbook for details on grading descriptors and the application of these across units within your programme.

Unit Title: DNA Technology

Graded Unit Reference Number: GA33BIO05

Ungraded Unit Reference Number: UA33BIO05

Module: Biology

Level: Three (3)

Credit Value: Three (3)

Minimum Guided Learning Hours: 30

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the principle of genetic engineering of bacterial cells	1.1 Explain the principle of genetically engineered bacteria (why is it possible and what are the possible applications?)
	1.2 Describe the roles of restriction enzymes, plasmids and DNA ligase in the genetic engineering of bacteria
	1.3 Outline and evaluate some of the arguments for and against genetic engineering
2. Understand the principle and applications of the polymerase chain reaction.	2.1 Explain the stages in the polymerase chain reaction and the roles of DNA primers, triphosphate nucleotides and DNA polymerase (e.g. Taq)
	2.2 Describe some applications of the polymerase chain reaction
	2.3 Use data to calculate the amplification of DNA by PRC thermo cycling
3. Understand the principles and applications of 'genetic fingerprinting'	3.1 Explain how and why restriction enzymes produce DNA fragments of different lengths from a sample of DNA
	3.2 Explain the principles of separation of DNA fragments by electrophoresis

	3.3	Analyse the results of electrophoresis (using actual plates, photographs or diagrams) and draw conclusions
4. Understand the principles and applications of gene therapy	4.1	Explain the principle of gene therapy, including the use of a vector
	4.2	Evaluate the difference between germ-line therapy and somatic cell therapy
	4.3	Outline some of the problems that might arise from the use of gene therapy, including practical and ethical issues