

**Unit Title:** Biology 1  
**Level:** Three  
**Credit Value:** 9  
**GLH:**  
**NOCN Unit Code:** RH3/3/TE/008  
**QCA Unit Reference**  
**Grading Descriptors:** 1, 4, 7

This unit has 5 learning outcomes.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
<b>The learner will:</b>	<b>The learner can:</b>
1. CELL BIOLOGY AND THE CHEMISTRY OF LIVING SYSTEMS: Understand Cell Biology	1.1. Use a light microscope to study cells 1.2. Compare a light microscope with the electron microscope 1.3. Describe the structure and function of membranes and organelles using a variety of resources 1.4. Describe the process of transport of substances into and out of cells 1.5. Define the organisation of cells into tissues, organs and systems
2. Understand Cell Reproduction, Inheritance and Expression of Genetic Information"	2.1. Explain how growth, repair and asexual reproduction can be brought about by mitosis in order to produce genetically identical cells 2.2. Explain the role of meiosis in sexual reproduction 2.3. Describe, with the aid of diagrams, the processes involved in both mitosis and meiosis 2.4. Describe the structure of DNA and explain how it replicates semi-conservatively during interphase 2.5. Describe how the information on DNA is used to construct polypeptides, including the respective roles of messenger RNA transfer RNA and the ribosomes 2.6. Solve problems involving monohybrid crosses

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
<b>The learner will:</b>	<b>The learner can:</b>
3. Understand the Chemistry of Living Systems	3.1. Describe ionic and covalent bonding 3.2. Carry out tests for reducing and nonreducing sugars, starch, lipid and protein 3.3. Describe the structure of carbohydrates, lipids and proteins 3.4. Describe the formation and breakdown of glycosidic, ester and peptide bonds
4. Understand Chemical Reactions and Enzymes	4.1. Explain the mode of action of enzymes in terms of an active site, enzyme/substrate complex, lowering of activation energy and enzyme specificity 4.2. Discuss the factors which can affect the rate of chemical reaction 4.3. Investigate the effect of various factors on the rate of enzyme catalysed reactions and explain these effects in terms of their metabolic significance
5. Understand Energy Concepts	5.1. Outline the need for energy in living organisms and describe the universal role of ATP 5.2. Discuss the importance of photosynthesis in the conversion of light energy into chemical energy 5.3. Describe the role of chloroplasts in photosynthesis 5.4. Distinguish between autotrophic and heterotrophic nutrition 5.5. Outline and explain the importance of aerobic and anaerobic respiration 5.6. Describe the role of mitochondria in respiration

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### ASSESSMENT INFORMATION

#### Guidance:

This grid gives details of the assessment activities to be used with the unit attached. Please refer to the NOCN Handbook for definitions of each activity and the expectations for assessment practice and evidence for moderation.

**The assessment activities for this unit are indicated in the table below:**

**Key: P = Prescribed** – this assessment method *must* be used to assess the unit.  
**O = Optional** – this assessment method *could* be used to assess the unit.

Case study		Project	
Written question & answer/test/exam		Role play/simulation	
Essay		Practical demonstration	
Report		Group discussion	
Oral question and answer		Performance/exhibition	
Written description		Production of artefact	
Reflective log / diary		Practice file	

#### Signposting Key Skills

This unit offers clear opportunities for learners to provide evidence of achievement in Key Skills achievement in the following skill area/s:

<b>Key Skill</b>		<b>Wider Key Skill</b>	
Communication		Working with others	
Information Technology		Problem solving	
Application of Number		Improving Own Learning and Performance	

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**Accredited End date:**  
**Unit Sector/Subject area:**  
**Grading descriptors:**  
**Availability for Use:**

<b>Purpose and Aim of the Unit</b>	Free Text
<b>Restrictions on the Availability</b>	Free Text or N/A
<b>Additional Assessment Requirements</b>	Free Text or N/A
<b>Details of relationship between the Unit and the NOS</b>	Free Text or N/A
<b>Details of relationship between the Unit and Standards (not NOS)</b>	Free Text or N/A
<b>Endorsement of the Unit by</b>	Free Text or N/A