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## Biology: Cells and Proteins

**SCQF:** level 7 (8 SCQF credit points)

**Unit code:** J1X9 77

### Unit outline

The general aim of this Unit is to develop skills of scientific inquiry, investigation and analytical thinking, along with knowledge and understanding of cells and proteins. Learners will use these skills when considering how applications of our understanding of cells and proteins can have impacts on our lives as well as on the environment/society. This application and development of skills can be achieved using a variety of approaches, including investigation and problem solving.

The Unit covers the key areas of laboratory techniques for biologists; proteins; membrane proteins; detecting and amplifying an environmental stimulus; communication within multicellular organisms; protein control of cell division. Learners will research issues, apply scientific skills and communicate information related to their findings, which will develop skills of scientific literacy.

Learners who complete this Unit will be able to:

- 1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation
- 2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

This Unit is available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work.

Exemplification of the standards in this Unit is given in *Unit Assessment Support*.

### **Recommended entry**

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ Higher Biology or Higher Human Biology Course or relevant Units

### **Equality and inclusion**

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Support Notes*.

# Standards

## Outcomes and Assessment Standards

### Outcome 1

The learner will:

- 1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation by:**
  - 1.1 Planning/designing an experiment/practical investigation
  - 1.2 Following procedures safely
  - 1.3 Making and recording observations/measurements correctly
  - 1.4 Analysing and presenting the results in an appropriate format
  - 1.5 Drawing valid conclusions and giving explanations supported by evidence
  - 1.6 Evaluating experimental procedures with justification

### Outcome 2

The learner will:

- 2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills by:**
  - 2.1 Making accurate statements and giving clear descriptions/explanations
  - 2.2 Solving problems

## Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

Evidence can be drawn from a variety of sources and presented in a variety of formats. Evidence may be presented for individual Outcomes or gathered for the Unit as a whole by combining assessment holistically in a single activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

# Assessment standards thresholds

## Outcome 1

Candidates are not required to show full mastery of the assessment standards to achieve outcome 1. Instead, five out of the six assessment standards for outcome 1 must be met to achieve a pass. Candidates must be given the opportunity to meet all assessment standards. The threshold has been put in place to reduce the volume of re-assessment where that is required.

### Transfer of evidence

The achievement of outcome 1 in this unit is transferrable to unit J1XA 77, however **cannot** be used as evidence of the achievement of outcome 1 in the Investigative Biology Unit, J1XB 77, of this course.

### Re-assessment

Candidates can be given the opportunity to re-draft their original outcome 1 report or to carry out a new experiment/practical investigation.

## Outcome 2

There is no requirement to pass assessment standard 2.1 (making accurate statements) and assessment standard 2.2 (solving problems) independently. Candidates can be assessed using a single test that contains marks and a cut-off score.

Where a candidate achieves 50% or more of the total marks available in a single unit assessment, they will pass outcome 2 for that unit. Existing unit assessment support packs can be used. Teachers and lecturers can choose to adapt the existing unit assessment support packs using the following guidance, or can replace the questions with suitable alternatives of a similar standard.

Unit assessment support packs 1 and 2 contain questions on all of the key areas (AS 2.1) and questions covering each of the problem solving skills (AS 2.2), and may be adapted for use as a single assessment. The number of marks available for each question should be combined to give the total number of marks available. A cut-off score of 50% should be applied to the unit assessments.

Assessment activity 2 tests 1 and 2 contain questions covering assessment standards 2.1 and 2.2 in a single assessment.

### Re-assessment

SQA's guidance on re-assessment is there should only be one or, in exceptional circumstances, two re-assessment opportunities. Re-assessment should be carried out under the same conditions as the original assessment. It is at the teacher or lecturer's discretion how they re-assess their candidates. Candidates may be given a full re-assessment opportunity, or be re-assessed on individual key areas and/or problem-solving skills. Candidates must achieve 50% or more in each re-assessment opportunity.

### Important notes:

1. Due to similarities in the questions, unit assessment support packs 1 and 2 **cannot** be used to re-assess candidates who have been assessed using the outcome 2, assessment activity 2 tests 1 and 2 (February 2017). Outcome 2, assessment activity 2 tests 1 and 2 **cannot** be used to re-assess candidates who have been assessed using the original unit assessment support pack 1 (unit by unit approach) or unit assessment support pack 2 (combined approach) (September 2015).
2. Centres can continue to assess AS 2.1 and 2.2 separately using the existing UASPs. If this option is chosen, 50% or more of the KU statements (AS 2.1) made by candidates must be correct in the unit assessment and at least one correct response for each problem solving skill (AS 2.2) is required to pass outcome 2. However, if a candidate is given more than one opportunity in a unit assessment to provide a response for a problem solving skill, then they must answer 50% or more correctly.

# Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

## 1 Literacy

1.1 Reading

1.2 Writing

## 2 Numeracy

2.1 Number processes

2.2 Money, time and measurement

2.3 Information handling

## 5 Thinking skills

5.3 Applying

5.4 Analysing and evaluating

5.5 Creating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

# Administrative information

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**Published:** July 2019 (version 3.0)

**Superclass:** RH

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## History of changes

Version	Description of change	Authorised by	Date
2.0	Significant changes to Outcomes and Assessment Standards. Significant changes to Evidence Requirements.	Qualifications Development Manager	April 2015
2.1	Assessment standard threshold information added.	Qualifications Manager	September 2018
3.0	Level changed from Advanced Higher to SCQF level 7  Unit code updated	Qualifications Manager	July 2019

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