Group Award Specification for:

National Certificate in Applied Sciences at SCQF level 5

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1. Introduction

The purpose of this document is to:

- Assist centres to implement, deliver and manage the qualification.
- Provide a guide for new staff involved in offering the qualification.
- Inform course managers, teaching staff, assessors, learners, employers and higher education institutes (HEIs) of the aims and purpose of the qualification.
- Provide details of the range of learners the qualification is suitable for and progression opportunities.

The National Certificate in Applied Sciences at SCQF level 5 provides a broad-based study of science containing both theory and practice that is required for progression to areas of scientific study, to science technician apprenticeships and/or employment as a laboratory assistant or trainee science technician.

The rationale to support the new National Certificate in Applied Sciences was developed using desk research, consultations using a questionnaire to all colleges in Scotland offering science programmes and discussions with stakeholders from industry.

The research indicated that science is an important discipline that has been identified by the Scottish Government and Scottish Enterprise as vital to the prosperity of the Scottish economy and important to the education of the general public. There were no nationally defined programmes for the development of scientific knowledge and skills at SCQF level 5 other than those available in the academic school curriculum. There was also no coherent pathway for learners to enter the Higher National programmes other than taking the National 5 and Higher courses in the science subjects.

The National Certificate in Applied Sciences at SCQF 5 is designed to provide not only an introductory science course that supports progression to Higher National programmes but also to develop some basic scientific skills.

The mandatory section is based on 6 credits from two chosen SCQF level 5 science subjects. It also includes science practical skills and science investigation skills units

to increase the practical and investigation skills development and a numeracy or mathematics unit to improve numeracy and mathematical skills.

3 credits from two sciences provides a good basis for progression to the NC in Applied Sciences at SCQF level 6 and demonstrates to employers that the content of a complete SCQF level 5 course had been covered. Colleges could select the optional units and further units to make up a full timetable (normally 18 credits) to suit local needs and the progression aspirations of the learners.

The qualification is designed for school leavers and adult returners. It is also suitable for learners in S5 and S6 with limited qualifications in science but would wish to develop their knowledge, skills and interest in the discipline.

Learners could progress to employment as a laboratory assistant or trainee science technician. The qualification also provides entry into the Modern Apprenticeship in Life Science and Related Science Industries at SCQF level 6.

2. Qualification structure

The National Certificate in Applied Sciences at SCQF level 5 has been designed so that it meets Qualifications Scotland's Design Principles. It consists of 12 credits and has a total credit value of 72 SCQF credit points.

Learners must complete 8 mandatory credits and 4 optional credits. 72 SCQF credit points are to be achieved overall. These are made up from the mandatory section of 48 SCQF credit points — 39 SCQF credit points at level 5 and 9 SCQF credit points at level 4. The further 24 SCQF credit points from the optional units may be either at SCQF level 4 or level 5.

2.1 Structure

Mandatory units (8 credits)

The following units are mandatory:

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
F3TC	10	Science Practical Skills	0.5	3	4
F3TB	11	Science Investigation Skills	0.5	3	5
H225 HP9V	74 44	Numeracy **or** Mathematics for Science 1	1	6	4

Two science areas must be selected: biology, chemistry or physics. 3 credits must be selected from each of the two chosen science areas, totalling 6 credits.

Biology (SCQF level 5)

If selected, 3 credits must be chosen from three different groupings. You do not need to select a credit from the remaining grouping.

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J4AC	75	Biology: Life on Earth	1	6	5
		or			
D027	11	Environmental Biology and Genetics			
		or			
D310	11	Ecosystems			
J4AA	75	Biology: Multicellular Organisms	1	6	5
		or			
D028	11	Animal Physiology			
		or			
F1RH	11	The Human Body			
J4A9	75	Biology: Cell Biology	1	6	5
		or			
D026	11	Living Cells			
HL95	45	Introducing Microbiology	1	6	5
		or			
DF5F	11	The Biology of Micro-organisms			
		or			
DC4H	11	Micro-biology for Healthcare: An Introduction			
		or			
DF5G	11	Biotechnology Processes			

Chemistry (SCQF level 5)

If selected, a credit must be chosen from each grouping.

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J239 D066	75 11	Chemical Changes and Structure **or** Building Blocks	1	6	5
J23D D068	75 11	Chemistry in Society **or** Acids, Bases and Metals	1	6	5
J23B D067	75 11	Natures Chemistry **or** Carbon Compounds	1	6	5

Physics (SCQF level 5)

If selected, all 3 credits must come from the same grouping.

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J2CK	75	Physics: Dynamics and Space	1	6	5
J26L	75	Physics: Electricity and Energy	1	6	5
J2CL	75	Physics: Waves and Radiation	1	6	5

Or

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
D380	11	Electricity and Electronics	1	6	5
D379	11	Mechanics and Heat	1	6	5
D382	11	Radioactivity	0.5	3	5
D381	11	Waves and Optics	0.5	3	5

Optional units (4 credits)

4 optional credits are required from the units listed below.

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
H207	74	Cell Biology	1	6	4
H208	74	Biology: Multicellular Organisms	1	6	4
H209	74	Biology: Life on Earth	1	6	4
H21G D063	74 10	Chemical Changes and Structure **or** Chemistry in Action	1	6	4
H21J	74	Nature's Chemistry	1	6	4
H21L	74	Chemistry in Society	1	6	4
H256	74	Physics: Electricity and Energy	1	6	4
H258	74	Physics: Dynamics and Space	1	6	4
H25A	74	Physics: Waves and Radiation	1	6	4
H24S	74	Environmental Science: Sustainability	1	6	4
HT6T	44	Causes and Prevention of Disease	1	6	4
HL94	44	The Human Body	1	6	4
D310	10	Ecosystems	1	6	4
F3TA	10	Science and Technology in Society	1	6	4
D023	10	Health and Technology	1	6	4
HN9W	75	Laboratory Science: Working in a Laboratory	1	6	5
HN9X	75	Laboratory Science: Careers using Laboratory Science	1	6	5
J2W3	75	Laboratory Science: Practical Skills	1	6	5

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J2W4	75	Laboratory Science: Practical Investigation	1	6	5
J25Y	75	Environmental Science: Living Environment	1	6	5
J263	75	Environmental Science: Earth's Resources	1	6	5
J45V	45	Forensic Science: Applications	1	6	5
J2W2	45	Introducing Microbiological Techniques	1	6	5
D039	11	Working with Micro-organisms	1	6	5
F3TD	11	Laboratory Safety	1	6	5
FV49	11	Biodiversity in Scotland	1	6	5
H22F	74	Mathematics: Expressions and Formulae	1	6	4
H22G	74	Mathematics: Relationships	1	6	4
H225	74	Numeracy	1	6	4
HP9V	44	Mathematics for Science 1	1	6	4
J287	75	Mathematics: Expressions and Formulae	1	6	5
J288	75	Mathematics: Relationships	1	6	5
J289	75	Mathematics: Applications	1	6	5
H23W F3GB	75 11	Literacy **or** Communication	1	6	5
HF88	45	Work Placement	1	6	5
F3GC	11	Information and Communication Technology	1	6	5

Some of the units that have not been selected as part of the mandatory section can be chosen as optional units. Please note that some restrictions still apply.

Biology (SCQF level 5)

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J4AC D027	75 11	Biology: Life on Earth **or** Environmental Biology and Genetics	1	6	5
D310	11	Ecosystems	1	6	5
J4AA D028	75 11	Biology: Multicellular Organisms **or** Animal Physiology	1	6	5
F1RH	11	The Human Body	1	6	5
J4A9 D026	75 11	Biology: Cell Biology **or** Living Cells	1	6	5
HL95	45	Introducing Microbiology	1	6	5
DF5F	11	The Biology of Micro-organisms	1	6	5
DC4H	11	Micro-biology for Healthcare: An Introduction	1	6	5
DF5G	11	Biotechnology Processes	1	6	5

Chemistry (SCQF level 5)

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J239 D066	75 11	Chemical Changes and Structure **or** Building Blocks	1	6	5
J23D D068	75 11	Chemistry in Society **or** Acids, Bases and Metals	1	6	5

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J23B D067	75 11	Natures Chemistry **or** Carbon Compounds	1	6	5

Physics (SCQF level 5)

Any units selected as optional units must come from the same grouping.

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
J2CK	75	Physics: Dynamics and Space	1	6	5
J26L	75	Physics: Electricity and Energy	1	6	5
J2CL	75	Physics: Waves and Radiation	1	6	5

Or

4 code	2 code	Unit title	Qualifications Scotland credit	SCQF credit points	SCQF level
D380	11	Electricity and Electronics	1	6	5
D379	11	Mechanics and Heat	1	6	5
D382	11	Radioactivity	0.5	3	5
D381	11	Waves and Optics	0.5	3	5

3. Aims of the qualification

The National Certificate in Applied Sciences at SCQF level 5 is designed to provide an introductory science course for school leavers and adult returners. It is also suitable for learners in S5 or S6 with limited science qualifications who wish to develop their knowledge, skills and interest in the discipline.

Successful completion of the qualification will allow learners to apply for employment as a laboratory assistant or trainee science technician.

3.1 General aims of the qualification

1. Enable progression within the SCQF.
2. Enhance learners' employment prospects.
3. Enhance learners' Core Skills of Communication, Numeracy, Information and Communication Technology and Problem Solving.
4. Develop the learners' important transferable skills such as analytical, evaluation, investigation and research, learning and study and planning skills.
5. Increase the number of learners interested in a career in the sciences.

3.2 Specific aims of the qualification

1. Increase knowledge and understanding of two sciences to SCQF level 5.
2. Develop problem solving skills within a scientific context at SCQF level 5.
3. Develop science practical skills associated with carrying out experimental and investigative work.
4. Develop critical awareness of the effects of science and technology on society to enable informed decisions as a member of the public.
5. Develop competence in numerical work at SCQF level 4.

4. Recommended entry to the qualification

Entry to this qualification is at the discretion of the centre. The following information on prior knowledge, skills, experience or qualifications that provide suitable preparation for this qualification has been provided by the Qualification Design Team (QDT) as guidance only.

Learners would normally have limited qualifications in the sciences. However, they will have a genuine wish to develop their knowledge, skills and interest in the discipline.

Learners would benefit from having attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- a science subject at National 4
- Mathematics at National 4
- English at National 4
- a further National 4 qualification, preferably a second science

The presenting centre may operate alternative access arrangements in cases where the learner is convinced that they already have the required competences in a given area. These arrangements are as follows:

- Assessment on demand
- Credit transfer
- Accreditation of prior learning

Individual presenting centres will require to outline their systems for each of these as part of any approval procedure.

4.1 Core Skills entry profile

The Core Skill entry profile provides a summary of the associated assessment activities that exemplify why a particular level has been recommended for this qualification. The information would be used to identify if additional learning support needs to be put in place for learners whose Core Skills profile is below the recommended entry level or whether learners should be encouraged to do an alternative level or learning programme.

Core Skill	**Recommended SCQF entry profile**	**Associated assessment activities**
Communication	4	Producing written communications.
Information and Communication Technology (ICT)	4	Creation of graphical material for report and presentation purposes.
Problem Solving	4	Critical thinking, planning and evaluation.

5. Additional benefits of the qualification in meeting employer needs

This qualification was designed to meet a specific purpose and what follows are details on how that purpose has been met through mapping of the units to the aims of the qualification. Through meeting the aims, additional value has been achieved by linking the unit standards with those defined in national occupational standards. In addition, significant opportunities exist for learners to develop the more generic skill, known as Core Skills through doing this qualification.

5.1 Mapping of qualification aims to units

Note: For details of the aims, see section 3.1 General aims of the qualification and section 3.2 Specific aims of the qualification.

Unit code	Unit title	General aims	Specific aims
F3TC 10	Science Practical Skills	1, 2, 3, 4, 5	3, 5
F3TB 11	Science Investigation Skills	1, 2, 3, 4, 5	2, 3, 5
H225 74	Numeracy	1, 2, 3, 4	5
HP9V 44	Mathematics for Science 1	1, 2, 3, 4, 5	5
J4AC 75	Biology: Life on Earth	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D027 11	Environmental Biology and Genetics	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D310 11	Ecosystems	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J4AA 75	Biology: Multicellular Organisms	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D028 11	Animal Physiology	1, 2, 3, 4, 5	1, 2, 3, 4, 5
F1RH 11	The Human Body	1, 2, 3, 4, 5	1, 2, 3, 4
J4A9 75	Biology: Cell Biology	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D026 11	Living Cells	1, 2, 3, 4, 5	1, 2, 3, 4, 5
HL95 45	Introducing Microbiology	1, 2, 3, 4, 5	1, 2, 3, 4
DF5F 11	The Biology of Micro-organisms	1, 2, 3, 4, 5	1, 2, 3, 4, 5
DC4H 11	Micro-biology for Healthcare: An Introduction	1, 2, 3, 4, 5	1, 2, 3, 4
DF5G 11	Biotechnology Processes	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J239 75	Chemical Changes and Structure	1, 2, 3, 4, 5	1, 2, 3, 4, 5

Unit code	Unit title	General aims	Specific aims
D066 11	Building Blocks	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J23D 75	Chemistry in Society	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D068 11	Acids, Bases and Metals	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J23B 75	Natures Chemistry	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D067 11	Carbon Compounds	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D380 11	Electricity and Electronics	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D379 11	Mechanics and Heat	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D382 11	Radioactivity	1, 2, 3, 4, 5	1, 2, 3, 4, 5
D381 11	Waves and Optics	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J2CK 75	Physics: Dynamics and Space	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J26L 75	Physics: Electricity and Energy	1, 2, 3, 4, 5	1, 2, 3, 4, 5
J2CL 75	Physics: Waves and Radiation	1, 2, 3, 4, 5	1, 2, 3, 4, 5

5.2 Mapping of National Occupational Standards (NOS) and/or trade body standards

Aspects of the underpinning knowledge in the National Occupational Standards for Laboratory and Associated Technical Activities developed by Cogent Skills are reflected in the National Certificates.

Unit code	Unit title	National Occupational Standards (NOS) code
F3TC 10	Science Practical Skills	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204, J1JN04
F3TB 11	Science Investigation Skills	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204, J1JN04
J4AC 75	Biology: Life on Earth	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1J204
D027 11	Environmental Biology and Genetics	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D310 11	Ecosystems	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1J204
J4AA 75	Biology: Multicellular Organisms	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D028 11	Animal Physiology	J1J004, J1HW04, J1J104, J1GX04, J1GY04
J4A9 75	Biology: Cell Biology	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D026 11	Living Cells	J1J004, J1HW04, J1J104, J1GX04, J1GY04
HL95 45	Introducing Microbiology	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204
DF5F 11	The Biology of Micro-organisms	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204
DF5G 11	Biotechnology Processes	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204
J239 75	Chemical Changes and Structure	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204
D066 11	Building Blocks	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204
J23D 75	Chemistry in Society	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204, J1JN04
D068 11	Acids, Bases and Metals	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1J204, J1JN04

Unit code	Unit title	National Occupational Standards (NOS) code
J23B 75	Natures Chemistry	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1JN04
D067 11	Carbon Compounds	J1J004, J1HW04, J1J104, J1GX04, J1GY04, J1H204, J1JN04
D380 11	Electricity and Electronics	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D379 11	Mechanics and Heat	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D382 11	Radioactivity	J1J004, J1HW04, J1J104, J1GX04, J1GY04
D381 11	Waves and Optics	J1J004, J1HW04, J1J104, J1GX04, J1GY04
J2CK 75	Physics: Dynamics and Space	J1J004, J1HW04, J1J104, J1GX04, J1GY04
J26L 75	Physics: Electricity and Energy	J1J004, J1HW04, J1J104, J1GX04, J1GY04
J2CL 75	Physics: Waves and Radiation	J1J004, J1HW04, J1J104, J1GX04, J1GY04

5.3 Mapping of Core Skills development opportunities across the qualifications

Core Skill Communication components: Written (Reading), Written (Writing), Oral

Unit code	Unit title	Communication components
F3TB 11	Science Investigation Skills	Written (Reading) (Opportunities) Written (Writing) (Opportunities)

Core Skill Numeracy components: Using Number, Using Graphical Information

Unit code	Unit title	Numeracy components
F3TC 10	Science Practical Skills	Using Number (Opportunities) Using Graphical Information (Opportunities)
F3TB 11	Science Investigation Skills	Using Number (Opportunities)
H225 74	Numeracy	Using Number (Embedded) Using Graphical Information (Embedded)
HP9V 44	Mathematics for Science 1	Using Number (Embedded) Using Graphical Information (Embedded)
J4AC 75	Biology: Life on Earth	Using Number (Opportunities) Using Graphical Information (Opportunities)
D027 11	Environmental Biology and Genetics	Using Graphical Information (Embedded)
D310 11	Ecosystems	Using Graphical Information (Embedded)
J4AA 75	Biology: Multicellular Organisms	Using Number (Opportunities) Using Graphical Information (Opportunities)
D028 11	Animal Physiology	Using Graphical Information (Embedded)
J4A9 75	Biology: Cell Biology	Using Number (Opportunities) Using Graphical Information (Opportunities)
D026 11	Living Cells	Using Graphical Information (Embedded)
HL95 45	Introducing Microbiology	Using Graphical Information (Opportunities)
DF5F 11	The Biology of Micro-organisms	Using Graphical Information (Embedded)

Unit code	Unit title	Numeracy components
DF5G 11	Biotechnology Processes	Using Graphical Information (Embedded)
J239 75	Chemical Changes and Structure	Using Number (Opportunities) Using Graphical Information (Opportunities)
D066 11	Building Blocks	Using Graphical Information (Embedded)
J23D 75	Chemistry in Society	Using Number (Opportunities) Using Graphical Information (Opportunities)
J23B 75	Natures Chemistry	Using Number (Opportunities) Using Graphical Information (Opportunities)
D380 11	Electricity and Electronics	Using Number (Embedded) Using Graphical Information (Embedded)
D379 11	Mechanics and Heat	Using Number (Embedded) Using Graphical Information (Embedded)
D382 11	Radioactivity	Using Number (Embedded) Using Graphical Information (Embedded)
D381 11	Waves and Optics	Using Number (Embedded) Using Graphical Information (E)
J2CK 75	Physics: Dynamics and Space	Using Number (Opportunities) Using Graphical Information (Opportunities)
J26L 75	Physics: Electricity and Energy	Using Number (Opportunities) Using Graphical Information (Opportunities)

Unit code	Unit title	Numeracy components
J2CL 75	Physics: Waves and Radiation	Using Number (Opportunities) Using Graphical Information (Opportunities)

Core Skill Information and Communication Technology (ICT) components:

Accessing Information, Providing and Creating Information

Unit code	Unit title	Information and Communication Technology (ICT) components
F3TB 11	Science Investigation Skills	Accessing Information (Opportunities) Providing and Creating Information (Opportunities)
HL95 45	Introducing Microbiology	Accessing Information (Opportunities) Providing and Creating Information (Opportunities)

Core Skill Problem Solving components: Critical Thinking, Planning and Organising, Reviewing and Evaluating

Unit code	Unit title	Problem Solving components
F3TC 10	Science Practical Skills	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
F3TB 11	Science Investigation Skills	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
H225 74	Numeracy	Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
HP9V 44	Mathematics for Science 1	Critical Thinking (Embedded)
J4AC 75	Biology: Life on Earth	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D027 11	Environmental Biology and Genetics	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
D310 11	Ecosystems	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)

Unit code	Unit title	Problem Solving components
J4AA 75	Biology: Multicellular Organisms	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D028 11	Animal Physiology	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
J4A9 75	Biology: Cell Biology	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D026 11	Living Cells	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
HL95 45	Introducing Microbiology	Critical Thinking (Embedded)
DF5F 11	The Biology of Micro-organisms	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
DF5G 11	Biotechnology Processes	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)

Unit code	Unit title	Problem Solving components
J239 75	Chemical Changes and Structure	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D066 11	Building Blocks	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
J23D 75	Chemistry in Society	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D068 11	Acids, Bases and Metals	Critical Thinking (Embedded)
J23B 75	Natures Chemistry	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
D067 11	Carbon Compounds	Critical Thinking (Embedded)
D380 11	Electricity and Electronics	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
D379 11	Mechanics and Heat	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)

Unit code	Unit title	Problem Solving components
D382 11	Radioactivity	Critical Thinking (Embedded) Reviewing and Evaluating (Embedded)
D381 11	Waves and Optics	Critical Thinking (Embedded) Planning and Organising (Embedded) Reviewing and Evaluating (Embedded)
J2CK 75	Physics: Dynamics and Space	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
J26L 75	Physics: Electricity and Energy	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)
J2CL 75	Physics: Waves and Radiation	Critical Thinking (Opportunities) Planning and Organising (Opportunities) Reviewing and Evaluating (Opportunities)

Core Skill Working with Others components: Working Co-operatively with Others, Reviewing Co-operative Contribution

Unit code	Unit title	Working with Others components
HL95 45	Introducing Microbiology	Working Co-operatively with Others (Opportunities)

5.4 Assessment strategy for the qualifications

In the majority of units, theory-based outcomes are assessed holistically by means of an end of unit closed-book assessment under controlled conditions. Practical outcomes are evidenced by a variety of means; please consult individual unit specifications for clarification and details of arrangements. The units in the following table are notable exceptions.

Unit title	**Assessment: Outcome 1**	**Assessment: Outcome 2**	**Assessment: Outcome 3**
Science Practical Skills	Practical	Practical	Practical
Science Investigation Skills	Report	Observation	Report

6. Guidance on approaches to delivery and assessment

The National Certificate in Applied Sciences at SCQF level 5 has been designed principally for learners who are seeking to study science to progress either to further studies in higher education or to employment in the science industry. The qualification can be delivered by a variety of modes which include full-time, part-time (including day-release), block-release or evening class delivery. It would also be possible to deliver some or all parts of the qualification in a work-place environment providing that suitable accommodation (for example, classrooms and laboratories) are available. Some units could be delivered by open and/or distance learning.

A normal full-time college programme consists of 18 credits and the qualification may be part of the full-time programme. The further 6 credits chosen by the college will depend on local circumstances and the learners aspirations.

6.1 Sequencing/integration of units

Centres have discretion as to the order in which they deliver the units. Units may be delivered by a combination of lecturing, group work, laboratory work, investigations and case studies.

The teaching and learning of science units are most effective when the concepts, principles and theories are set in a relevant context, for example making reference to applications and to real world situations. Practical activities provide opportunities to develop a wide range of skills associated with scientific enquiry and practical problem solving. Practical units such as Science Practical Skills and Science Investigation Skills can be integrated into the teaching of the science units. This provides more time to deliver the content of the science units thus enabling more relevant practical work to be undertaken.

It is advised that the Numeracy or Mathematics for Science unit is taught at the beginning of the delivery of the qualification to enable the learners to have facility in dealing with the numerical work in the science units.

The choice of options should be complementary to the aspirations of the learners.

6.2 Recognition of prior learning

Qualifications Scotland recognises that learners gain knowledge and skills acquired through formal, non-formal and informal learning contexts.

In some instances, a full group award may be achieved through the recognition of prior learning. However, it is unlikely that a learner would have the appropriate prior learning and experience to meet all the requirements of a full group award.

The recognition of prior learning may **not** be used as a method of assessing in the following types of units and assessments:

- HN Graded Units.
- Course and/or external assessments.
- Other integrative assessment units (which may or not be graded).
- Certain types of assessment instruments where the standard may be compromised by not using the same assessment method outlined in the unit.
- Where there is an existing requirement for a licence to practice.
- Where there are specific health and safety requirements.
- Where there are regulatory, professional or other statutory requirements.
- Where otherwise specified in an assessment strategy.

More information and guidance on the Recognition of Prior Learning (RPL) may be found on our website: Qualifications Scotland Home Page

The following sub-sections outline how existing Qualifications Scotland units may contribute to this group award. Additionally, they also outline how this group award may be recognised for professional and articulation purposes.

6.2.1 Articulation and/or progression

The National Certificate at SCQF level 5 is designed to allow progression to the NC in Applied Sciences at SCQF level 6. You may also be able to progress to:

SCQF level 6

- Higher qualification in a relevant science
- SVQ in Laboratory Skills or Laboratory and Associated Technical Activities
- Modern Apprenticeship in Life Sciences and Related Industries

Further progression routes include:

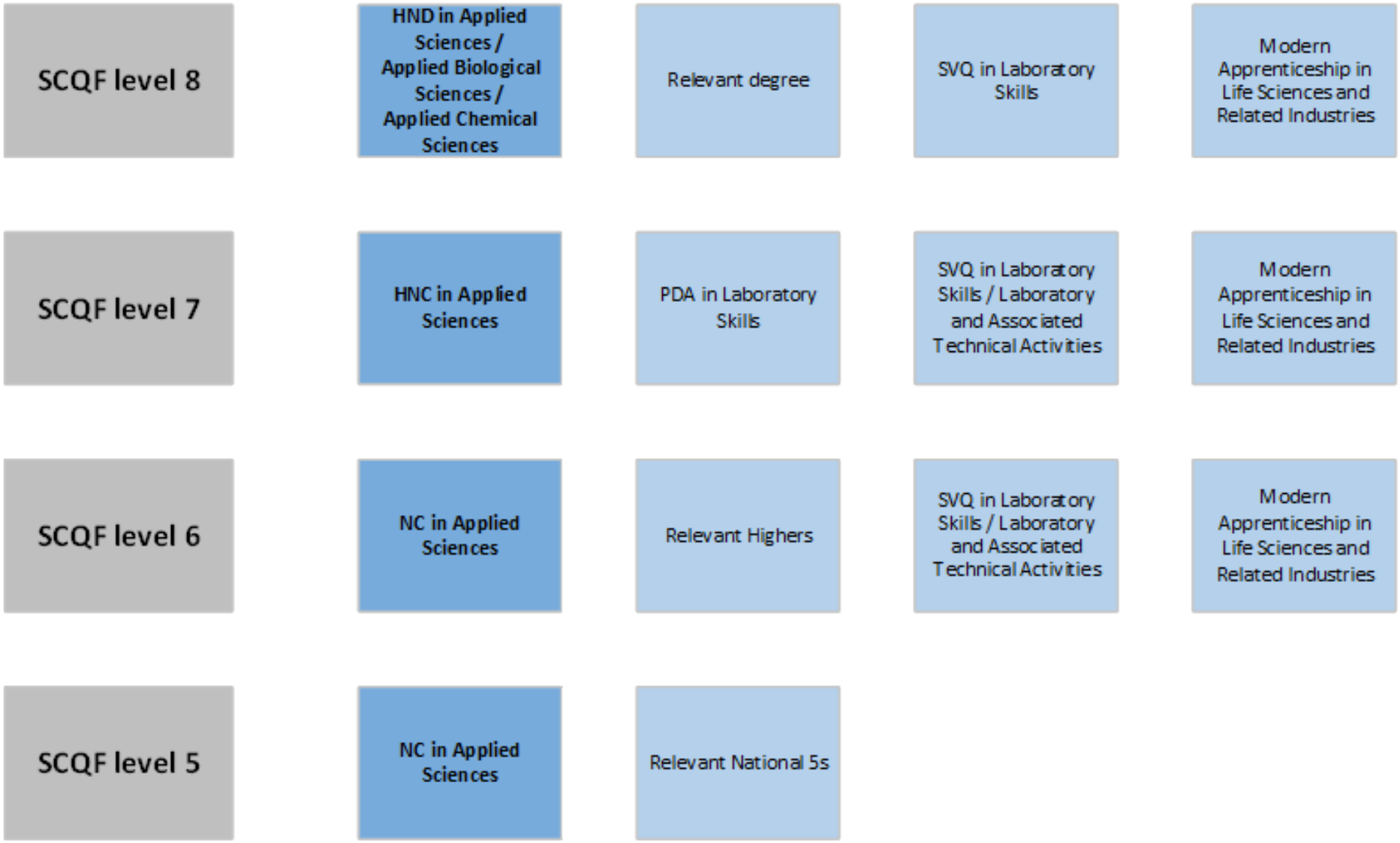
SCQF level 7

- HNC in Applied Sciences
- PDA in Laboratory Skills
- SVQ in Laboratory Skills or Laboratory and Associated Technical Activities
- Modern Apprenticeship in Life Sciences and Related Industries

SCQF level 8

- HND in Applied Sciences, Applied Biological Sciences and/or Applied Chemical Sciences
- Relevant degree course
- SVQ in Laboratory Skills
- Modern Apprenticeship in Life Sciences and Related Industries

Progression opportunities are also displayed in the diagram below.


SCQF level 8
HND in Applied Sciences / Applied Biological Sciences / Applied Chemical Sciences
Relevant degree
SVQ in Laboratory Skills
Modern Apprenticeship in Life Sciences and Related Industries
SCQF level 7
HNC in Applied Sciences
PDA in Laboratory Skills
SVQ in Laboratory Skills / Laboratory and Associated Technical Activities
Modern Apprenticeship in Life Sciences and Related Industries
SCQF level 6
NC in Applied Sciences
Relevant Highers
SVQ in Laboratory Skills / Laboratory and Associated Technical Activities
Modern Apprenticeship in Life Sciences and Related Industries
SCQF level 5
NC in Applied Sciences
Relevant National 5s

6.2.2 Professional recognition

The NC in Applied Sciences at SCQF level 5 does not carry any professional recognition.

6.2.3 Transitional arrangements

It is recommended that learners who are in the process of completing the predecessor group award finish it rather than switching to the new group award.

6.3 Opportunities for e-assessment

E-assessment may be appropriate for some assessments in the units comprising this group award. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the evidence requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support Qualifications Scotland's qualifications is available on our website.

6.4 Support materials

A list of existing Assessment Support Packs (ASPs) is available to view on Qualifications Scotland's website: Internal Assessment Support Materials

6.5 Resource requirements

It is anticipated that secondary schools and further education (FE) colleges should have sufficient facilities and resources to deliver the qualification. Access to suitable laboratory facilities for biology, chemistry and physics-based practicals will be required.

Centres will require to ensure that specific requirements in terms of documents, texts and information technology (IT) resources to support the learning processes within the qualification are met.

All staff delivering the group award will require to hold a qualification appropriate to the units delivered.

7. General information for centres

Equality and inclusion

The unit specifications making up this group award have been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners will be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website:
Qualifications Scotland Assessment Arrangements

Internal and external verification

All assessments used within these qualifications should be internally verified, using the appropriate policy within the centre and the guidelines set by Qualifications Scotland.

External verification will be carried out by Qualifications Scotland to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external verification can be found in Qualifications Scotland's Guide to Assessment

8. Glossary of terms

Embedded Core Skills is where the assessment evidence for the unit also includes full evidence for complete Core Skill or Core Skill components. A learner successfully completing the unit will be automatically certificated for the Core Skill. (This depends on the unit having been successfully audited and validated for Core Skills certification.)

Finish date: The end of a group award's lapsing period is known as the finish date. After the finish date, the group award will no longer be live and the following applies:

- Learners may not be entered for the group award.
- the group award will continue to exist only as an archive record on the Awards Processing System (APS).

Lapsing date: When a group award is entered into its lapsing period, the following will apply:

- the group award will be deleted from the relevant catalogue.
- the group award specification will remain until the qualification reaches its finish date at which point it will be removed from Qualifications Scotland's website and archived.
- no new centres may be approved to offer the group award.
- centres should only enter learners whom they expect to complete the group award during the defined lapsing period.

Qualifications Scotland credit value: The credit value allocated to a unit gives an indication of the contribution the unit makes to an Qualifications Scotland group award. An Qualifications Scotland credit value of 1 given to an Qualifications Scotland unit represents approximately 40 hours of programmed learning, teaching and assessment.

SCQF: The Scottish Credit and Qualification Framework (SCQF) provides the national common framework for describing all relevant programmes of learning and qualifications in Scotland. SCQF terminology is used throughout this guide to refer to

credits and levels. For further information on the SCQF visit the SCQF website at www.scqf.org.uk.

SCQF credit points: SCQF credit points provide a means of describing and comparing the amount of learning that is required to complete a qualification at a given level of the Framework. One National Unit credit is equivalent to 6 SCQF credit points. One National Unit credit at Advanced Higher and one Higher National Unit credit (irrespective of level) is equivalent to 8 SCQF credit points.

SCQF levels: The level a qualification is assigned within the framework is an indication of how hard it is to achieve. The SCQF covers 12 levels of learning. HNCs and HNDs are available at SCQF levels 7 and 8, respectively. Higher National Units will normally be at levels 6 to 9 and graded units will be at levels 7 and 8. National Qualification Group Awards are available at SCQF levels 2 to 6 and will normally be made up of National Units which are available from SCQF levels 2 to 7.

Subject unit: Subject units contain vocational / subject content and are designed to test a specific set of knowledge and skills.

Signposted Core Skills: Refers to opportunities to develop Core Skills arise in learning and teaching but are not automatically certificated.

History of changes

It is anticipated that changes will take place during the life of the qualification and this section will record these changes. This document is the latest version and incorporates the changes summarised below. Centres are advised to check Qualifications Scotland's APS Navigator to confirm they are using the up-to-date qualification structure.

Please note: Where a unit is revised by another unit:

- No new centres may be approved to offer the unit which has been revised.
- Centres should only enter learners for the unit which has been revised where they are expected to complete the unit before its finish date.

Version number	Description	Date

Acknowledgement

Qualifications Scotland acknowledges the valuable contribution that Scotland's colleges have made to the development of this qualification.

Template version: March 2026

9. General information for learners

This information will help you decide whether this is the qualification for you by explaining what the qualification is about, what you should know or be able to do before you start, what you will need to do during the qualification and opportunities for further learning and employment.

Science has changed the way we live — electrical gadgets, new drugs, computers — and new discoveries are made every day. If you are interested in studying science but are not sure which area — chemistry, life sciences, physics interests you most then the new National Certificates in Applied Sciences at SCQF level 5 introduce you to these areas, develop your practical skills and help you decide whether you would like to progress your studies in science.

Content of the qualification

The National Certificate in Applied Sciences at SCQF level 5 requires you to achieve a minimum of 12 credits. You may of course take additional units to add to your portfolio.

The qualification is based on 6 credits from two different science subjects at SCQF level 5. This includes biology, chemistry and physics. To give you more experience of the practical work in the sciences, there are two units covering practical and investigation skills. To help you with the mathematics in the various science units, a Numeracy or Mathematics for Science unit is studied.

To make up the 12 required credits you will select a further 4 credits from a range of science, mathematics or information technology units. A suggested unit is Laboratory Safety as this topic is fundamental when working in a laboratory. Your teacher or lecturer will help you select these credits to help you reach your ambition for the future.

You will be automatically certificated with the core skills of Numeracy at SCQF level 4 on successful completion of the mandatory numeracy or mathematics unit.

Teaching and Learning

The qualification is likely to be delivered by a combination of lectures, group work, class discussion and debates, case studies, laboratory work and investigations. Open learning and/or supported self-study may also be used as a method of delivery by your teacher or lecturer for certain units.

Assessment

Individual unit assessments will normally consist of practical exercises, written or oral tests, assignments, laboratory work and project work. Your teacher or lecturer should tell you at the start of the unit what form the unit assessment will take.

Entry requirements

You will have a genuine wish to develop your knowledge, skills and interest in science. Typically you would have:

- a science subject at National 4
- Mathematics at National 4
- English at National 4
- a further National 4 qualification, preferably a second science

Progression

On completion of the qualification you may progress to the National Certificate in Applied Sciences at SCQF level 6. You could also progress to the Modern Apprenticeship in Life Science and Related Science Industries at SCQF level 6. You may also apply for employment as a laboratory assistant or trainee science technician.