



Group Award Specification for:

**National Progression Award in
Science and Technology at SCQF level 4**

Group Award Code: GG39 44

**National Progression Award in
Science and Health at SCQF level 4**

Group Award Code: GG36 44

**National Progression Award in
Practical Science at SCQF level 5**

Group Award Code: GG37 45

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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.

Version number	Description	Date
04	GG37 45 Revision of Unit: J45V 45 Forensic Science: Applications has replaced F823 11 Forensic Science: Applications which finishes 31/07/2022 in National Progression Award in the Practical Science at SCQF level 5 framework.	02/04/20
03	GG36 44 Revision of Unit: F59A 10 Health Sector: Life Sciences Industry has been revised by F59A 74 Health Sector: Life Sciences Industry and will finish on 31/07/2018.	02/03/2017
02	GG39 44 Revision of Unit: D064 10 Everyday Chemistry <i>has been revised by</i> H21L 74 Chemistry in Society <i>and will finish on</i> 31/07/2018. GG36 44 Revision of Unit: D065 10 Chemistry and Life <i>has been revised by</i> H21J 74 Nature's Chemistry <i>and will finish on</i> 31/07/2018.	19/05/2014

Contents

1	Introduction	1
2	Qualifications structure.....	2
	2.1 Structure	2
3	Aims of the qualifications	5
	3.1 General aims of the qualifications	5
	3.2 Specific aims of the qualifications	5
4	Recommended entry to the qualifications	6
	4.1 Core Skills entry profile	6
5	Additional benefits of the qualifications in meeting employer needs.....	7
	5.1 Mapping of qualification aims to Units	8
	5.2 Mapping of National Occupational Standards (NOS) and/or trade body standards 11	
	5.3 Mapping of Core Skills development opportunities across the qualifications.....	14
	5.4 Assessment Strategy for the qualifications	16
6	Guidance on approaches to delivery and assessment	19
	6.1 Sequencing/integration of Units	19
	6.2 Recognition of Prior Learning	20
	6.3 Opportunities for e-assessment	23
	6.4 Support materials.....	23
	6.5 Resource requirements.....	23
7	General information for centres.....	23
8	Glossary of terms	24
9	General information for learners	26
	Progression pathways.....	28

1 Introduction

This document was previously known as the Arrangements document. 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 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 rationale for the suite of National Progression Awards (NPA) in Science and Technology at SCQF level 4, Science and Health at SCQF level 4 and Practical Science at SCQF level 5 is based on an identified gap in the current provision of nationally recognised qualifications that meet the needs of those candidates who wish to gain formal qualifications for further progression.

Research has shown that in general the further education sector lacks science provision at the lower end of the SCQF framework and that this in turn affects the ability of potential candidates to access FE at an appropriate entry level. This produces a barrier to people engaging with science and/or also often leads to candidates failing to achieve on level 5 programmes. The suite of NPAs addresses this gap by giving purpose built short courses allowing learners the opportunity to develop knowledge and skills across various areas of science. The NPAs provide a way of engaging with science using a contextualised and modern slant to the subject, covering areas of interest to the public. The suite of NPAs provide an ideal foundation to the subject and, due to the involvement of practical skills, give learners the opportunity to gain a basic but realistic experience of a range of areas of science and so allow informed choice for future study.

The Group Awards all consist of a range of existing NQ Units with the title of each qualification reflecting the sum of the competences within these Units. In each case the main focus of the framework is the development of the candidate's knowledge and understanding in parallel with the development of their practical skills.

Due to the flexibility of delivery and learning challenges they provide, the NPAs are suited to all learners, from the 'new' young learners who have growing opportunities to attend further education establishments, to adult returners, with or without prior knowledge.

All three Group Awards: National Progression Award (NPA) in Science and Technology at SCQF level 4, Science and Health at SCQF level 4 and Practical Science at SCQF level 5 will also meet the needs of those already in lower level employment within the science industry by providing a suitable starting point for those looking to gain formal qualifications relevant to their current job.

2 Qualifications structure

NPA Science and Technology

This Group Award is made up of 4 SQA Unit credits. It comprises 24 SCQF points of which 18 are in the mandatory section and 6 are in the optional section. In general, credit points are at SCQF level 4, with the exception of a 0.5 credit optional Unit at SCQF level 5 (D11N 11). A minimum of 24 SCQF points and 4 SQA credits are required to achieve the NPA award.

A mapping of Core Skills development opportunities is available in Section 5.3.

2.1 Structure

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
Mandatory Section: 3 SQA credits					
*H21L	74	Chemistry in Society	1	6	4
D373	10	Telecommunications	0.5	3	4
D378	10	Electronics	0.5	3	4
D024	10	Biotechnological Industries	1	6	4
Optional Section: Choose 1 SQA credit from the following:					
F3TC	10	Science Practical Skills	0.5	3	4
D11N	11	Working Safely	0.5	3	5
H312	10	The Science of Renewable Energy: An Introduction	1	6	4

*refer to history of changes for revision details

SCQF level

The qualification has been mapped at SCQF level 4. This reflects the level of the component Units and the learning required of the candidates. For example, the qualification will require candidates to:

- ◆ learn to use scientific methods and appropriate equipment
- ◆ collect experimental data
- ◆ work with others

The qualification does not match the requirements of an SCQF level 5 qualification which would require more in factual and theoretical knowledge, planning, interpreting data as well as using a wide range of numerical and graphical data in routine contexts.

NPA Science and Health

This Group Award is made up of 4 SQA Unit credits. It comprises 24 SCQF points which are all mandatory. A minimum of 24 SCQF points and 4 SQA credits are required to achieve the NPA award.

A mapping of Core Skills development opportunities is available in Section 5.3.

Structure

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
Mandatory Units					
*H21J	74	Nature's Chemistry	1	6	4
D375	10	Radiations	0.5	3	4
D376	10	Sound and Music	0.5	3	4
D023	10	Health and Technology	1	6	4
D0RE	10	Introducing Science Investigation Skills	0.5	3	4
*F59A	74	Health Sector: Life Sciences Industry	0.5	3	4

*refer to history of changes for revision details.

SCQF level

The qualification has been mapped at SCQF level 4. This reflects the level of the component Units and the learning required of the candidates. For example, the qualification will require candidates to:

- ◆ learn to use scientific methods and appropriate equipment
- ◆ collect experimental data
- ◆ work with others

The qualification does not match the requirements of an SCQF level 5 qualification which would require more in factual and theoretical knowledge, planning, interpreting data as well as using a wide range of numerical and graphical data in routine contexts.

NPA Practical Science

This Group Award is made up of 4 SQA Unit credits. It comprises 24 SCQF points which are all mandatory. A minimum of 24 SCQF points and 4 SQA credits are required to achieve the NPA award.

A mapping of Core Skills development opportunities is available in Section 5.3.

Structure

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
Mandatory Units					
EB75	11	Introduction to Chemistry	1	6	5
D381	11	Waves and Optics	0.5	3	5
D382	11	Radioactivity	0.5	3	5
F1RH	11	The Human Body	1	6	5
J45V	45	Forensic Science: Applications*	1	6	5

SCQF level

The qualification has been mapped at SCQF level 5. This reflects the level of the component Units and the learning required of the candidates. For example, the qualification will require candidates to:

- ◆ learn to use scientific methods and equipment accurately
- ◆ use problem solving to interpret experimental data
- ◆ combine and present their ideas while communicating with others

The qualification goes beyond the demands of an SCQF level 4 qualification due to the degree of interpretation, planning, numerical analysis and communication required and due to the level of practical skills.

3 Aims of the qualifications

The principal aims of the Group Awards are:

Common to all three Group Awards:

- ◆ Provide structured awards that will recognise existing skills and competences relating to science
- ◆ Provide a range of development opportunities in core and essential skills, specifically to:
 - Communications
 - ICT
 - Numeracy
 - Working with Others
 - Problem solving
 - Employability skills
- ◆ Develop a range of key skills that are aligned to industry standards

3.1 General aims of the qualifications

The other general aims of the suite of National Progression Awards are to:

- ◆ Provide an award structure which has sufficient flexibility to allow for various modes of delivery and target groups.
- ◆ Allow development of generic skills of life, learning and work.
- ◆ Enable progression within the Scottish Credit and Qualifications framework (SCQF).
- ◆ Allow candidates to see progression and achievement timeously.
- ◆ Encourage candidates to take charge of their own learning and development.
- ◆ Provide an entry level point for people who wish to pursue a career in STEM related areas. This is seen to be of particular importance given the existing and projected shortfall in suitably qualified individuals in these areas.

3.2 Specific aims of the qualifications

The following aims are specific to each of the Group Awards:

NPA in Science and Technology at SCQF level 4

- ◆ Develop knowledge and understanding of biology, chemistry, and physics
- ◆ Develop knowledge and understanding of science in relation to applications in everyday life
- ◆ Apply knowledge to understand developments in new technology
- ◆ Prepare candidates for progression to qualifications at SCQF level 5 in science and in engineering
- ◆ Develop skills in good laboratory practice
- ◆ Develop an understanding of science health and safety practices
- ◆ Provide an opportunity to develop an awareness of the Essential Skill of Sustainable Development

NPA in Science and Health at SCQF level 4

- ◆ Develop knowledge and understanding of biology, chemistry, and physics
- ◆ Develop knowledge and understanding of science in relation to human health
- ◆ Prepare candidates for progression to qualifications at SCQF level 5 in areas related to human health
- ◆ Develop skills in good laboratory practice
- ◆ Develop an understanding of health and safety practices
- ◆ Develop an awareness of the Skill for Life of Health and Wellbeing

NPA in Practical Science at SCQF level 5

- ◆ Develop knowledge and understanding of biology, chemistry, and physics
- ◆ Develop skills in good laboratory practice
- ◆ Prepare candidates for progression to extended qualifications at SCQF level 5 and above
- ◆ Develop an understanding of science health and safety
- ◆ Develop an awareness of the Essential Skill of Citizenship

4 Recommended entry to the qualifications

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 as guidance only.

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 should 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	SCQF level 3	Report writing
Numeracy	SCQF level 3	Recording measurements, processing information using numerical calculations, reading information from graphs, drawing graphs.
Information and Communication Technology (ICT)	SCQF level 3	Accessing information from internet.
Problem Solving	SCQF level 3	Interpret data and draw conclusions
Working with Others	SCQF level 3	Working in pairs or groups to carry out practical tasks/investigations.

For the NPA in Practical Science the Core Skills of *Communication*, *Numeracy* and *Information and Communication Technology (ICT)* are recommended to have an SCQF entry level of 4 due to the more complex nature of assessment activities in the component Units of that Group Award.

5 Additional benefits of the qualifications in meeting employer needs

These qualifications were 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 qualifications. Through meeting the aims, additional value has been achieved by linking the Unit standards with those defined in National Occupational Standards and/or trade/professional body requirements. In addition, significant opportunities exist for learners to develop the more generic skills, known as Core Skills through doing this qualification.

5.1 Mapping of qualification aims to Units

NPA Science and Technology

Aims	Everyday Chemistry D064 10 (Mandatory)	Telecommunications D373 10 (Mandatory)	Electronics D378 10 (Mandatory)	Biotechnology Industries D024 10 (Mandatory)	The Science of Renewable Energy: An Introduction H312 10 (Optional)	Science Practical Skills F3TC 10 (Optional)	Working Safely D11N 11 (Optional)
Provide structured awards that will recognise existing skills and competences relating to science	X	X	X	X	X	X	X
Provide a range of development opportunities in core and essential skills	X	X	X	X	X	X	X
Prepare candidates for progression to qualifications at SCQF level 5 in science and in engineering	X	X	X	X	X	X	
Develop a range of key skills that are aligned to industry standards	X	X	X	X	X	X	X
Develop knowledge and understanding of biology, chemistry, and physics	X	X	X	X	X	X	X
Develop knowledge and understanding of science in relation to applications in everyday life	X	X	X	X	X		
Apply knowledge to understand developments in new technology					X		
Develop skills in good laboratory practice	X	X	X	X	X	X	X
Develop an understanding of health and safety practices						X	X
Develop an awareness of the Essential Skill of Sustainable Development					X		

NPA Science and Health

Aims	Chemistry and Life D065 10 (Mandatory)	Radiations D375 10 (Mandatory)	Sound and Music D376 10 (Mandatory)	Health and Technology D023 10 (Mandatory)	Introducing Science Investigation Skills D0RE 10 (Mandatory)	Health Sector: Life Sciences Industry F59A 10 (Mandatory)
Provide structured awards that will recognise existing skills and competences relating to science	X	X	X	X	X	X
Provide a range of development opportunities in core and essential skills	X	X	X	X	X	X
Prepare candidates for progression to qualifications at SCQF level 5 in areas related to human health	X	X	X	X	X	X
Develop a range of key skills that are aligned to industry standards	X	X	X	X	X	X
Develop knowledge and understanding of biology chemistry, and physics	X	X	X	X	X	X
Develop knowledge and understanding of science in relation to human health	X	X		X		X
Develop skills in good laboratory practice	X	X	X	X	X	
Develop an understanding of health and safety practices	X	X	X	X	X	
Develop an awareness of the Skill for Life of Health and Wellbeing				X		X

NPA Practical Science

Aims	Introduction to Chemistry EB75 11 (Mandatory)	Waves and Optics D381 11 (Mandatory)	Radioactivity D382 11 (Mandatory)	The Human Body F1RH 11 (Mandatory)	Forensic Science : Applications F45V 45 (Mandatory)
Provide structured awards that will recognise existing skills and competences relating to science	X	X	X	X	X
Provide a range of development opportunities in core and essential skills	X	X	X	X	X
Prepare candidates for progression to extended qualifications at SCQF level 5 and above	X	X	X	X	X
Develop a range of key skills that are aligned to industry standards	X	X	X	X	X
Develop knowledge and understanding of biology, chemistry, and physics	X	X	X	X	X
Develop skills in good laboratory practice	X	X	X		X
Develop an understanding of science health and safety	X	X	X		X
Develop an awareness of the Essential Skill of Citizenship					X

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

NPA Science and Technology

Mapping of NOS SVQ Level 2: Laboratory Science G9JM 22		Everyday Chemistry D064 10	Telecommunications D373 10	Electronics D378 10	Biotechnological Industries D024 10	The Science of Renewable Energy: An Introduction H31210	Science Practical Skills F3TC 10	Working Safely D11N 11
1	Maintaining Health and Safety	X			X	X	X	X
2	Maintaining Effective and Efficient Working Relationships	X	X	X	X	X	X	X
3	Receiving, sorting, transporting and storing lab specimens							X
4	Communicating lab information to authorised personnel							
5	Accessing, registering and inputting patient data in a LIMS							
6	Assisting with the prep of biopsy specimens							
7	Assisting with the prep of microbiological specimens				X			
8	Assisting with the processing of liquid clinical specimens using automated lab equipment							
9	Assisting with the processing of liquid clinical specimens using manual lab equipment						X	
10	Assisting with maintenance of stock reagents and consumables for lab use	X					X	
11	Drawing blood samples from patients for lab investigations							
12	Assisting with the processing of liquid compounds/samples using automated lab equipment							
13	Assisting with the processing of liquid compounds/samples using manual lab equipment	X					X	X
14	Accessing, registering and inputting batch/sample data in a LIMS							
15	Assisting with the prep of solutions for lab use	X					X	X
16	Measuring, weighing and preparing compounds and solutions for lab use	X					X	X
17	Assisting with the processing of diagnostic cytology specimens in the lab				X			
18	Assisting with the routine maintenance, cleaning, disinfecting and calibration of lab equipment							
19	Preparing culture media and solutions for lab use				X		X	X
20	Following aseptic procedures in lab environment				X		X	X

NPA Science and Health

Mapping of NOS SVQ Level 2: Laboratory Science G9JM 22							
NPA Science and Health		Chemistry and Life D065 10	Radiations D375 10	Sound and Music D376 10	Health and Technology D023 10	Introducing Science Investigation Skills D0RE 10	Health Sector: Life Sciences Industry F59A 10
1	Maintaining Health and Safety	X			X	X	X
2	Maintaining Effective and Efficient Working Relationships	X	X	X	X	X	X
3	Receiving, sorting, transporting and storing lab specimens						
4	Communicating lab information to authorised personnel						
5	Accessing, registering and inputting patient data in a LIMS						
6	Assisting with the prep of biopsy specimens						
7	Assisting with the prep of microbiological specimens					X	
8	Assisting with the processing of liquid clinical specimens using automated lab equipment						
9	Assisting with the processing of liquid clinical specimens using manual lab equipment				X	X	X
10	Assisting with maintenance of stock reagents and consumables for lab use	X					
11	Drawing blood samples from patients for lab investigations						
12	Assisting with the processing of liquid compounds/samples using automated lab equipment						
13	Assisting with the processing of liquid compounds/samples using manual lab equipment	X				X	
14	Accessing, registering and inputting batch/sample data in a LIMS						
15	Assisting with the prep of solutions for lab use	X				X	
16	Measuring, weighing and preparing compounds and solutions for lab use	X				X	
17	Assisting with the processing of diagnostic cytology specimens in the lab					X	
18	Assisting with the routine maintenance, cleaning, disinfecting and calibration of lab equipment						
19	Preparing culture media and solutions for lab use					X	
20	Following aseptic procedures in lab environment					X	

NPA Practical Science

Mapping of NOS SVQ Level 2: Laboratory Science G9JM 22						
NPA Practical Science		Introduction to Chemistry EB75 11	Waves and Optics D381 11	Radioactivity D382 11	The Human Body F1RH 11	Forensic Science: Applications J45V 45
1	Maintaining Health and Safety	X			X	X
2	Maintaining Effective and Efficient Working Relationships	X	X	X	X	X
3	Receiving, sorting, transporting and storing lab specimens					
4	Communicating lab information to authorised personnel					
5	Accessing, registering and inputting patient data in a LIMS					
6	Assisting with the prep of biopsy specimens					
7	Assisting with the prep of microbiological specimens					
8	Assisting with the processing of liquid clinical specimens using automated lab equipment					
9	Assisting with the processing of liquid clinical specimens using manual lab equipment					
10	Assisting with maintenance of stock reagents and consumables for lab use	X				
11	Drawing blood samples from patients for lab investigations					
12	Assisting with the processing of liquid compounds/samples using automated lab equipment					
13	Assisting with the processing of liquid compounds/samples using manual lab equipment	X				X
14	Accessing, registering and inputting batch/sample data in a LIMS					
15	Assisting with the prep of solutions for lab use	X				X
16	Measuring, weighing and preparing compounds and solutions for lab use	X				X
17	Assisting with the processing of diagnostic cytology specimens in the lab					
18	Assisting with the routine maintenance, cleaning, disinfecting and calibration of lab equipment					
19	Preparing culture media and solutions for lab use					
20	Following aseptic procedures in lab environment					

5.3 Mapping of Core Skills development opportunities across the qualifications

Unit code	Unit title	Communication		Numeracy		ICT		Problem Solving			Working with Others	
		Written	Oral	Using Number	Using Graphical Information	Accessing Information	Providing/Creating Information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	Working Co-operatively with Others	Reviewing Co-operative Contribution
NPA Level 4 Science and Technology Group Award — Mandatory Units												
D064 10	Everyday Chemistry	S		S	O		O	S	S	S	S	O
D024 10	Biotechnological Industries	S	O	S	O			S	S	S	S	O
D373 10	Telecommunications	S		S					S	S		
D378 10	Electronics					O	O	S	S	S		
NPA Level 4 Science and Technology Group Award — Optional Units												
H312 10	The Science of Renewable Energy: An Introduction	S	O	O	O			S	S	O		
F3TC 10	Science Practical Skills	S		S	S			S	S	S	S	O
D11N 11	Working Safely							S		S		

Unit code	Unit title	Communication		Numeracy		ICT		Problem Solving			Working with Others	
		Written	Oral	Using Number	Using Graphical Information	Accessing Information	Providing/Creating Information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	Working Co-operatively with Others	Reviewing Co-operative Contribution
NPA Level 4 Science and Health Group Award — Mandatory Units												
D065 10	Chemistry and Life	S		S	O		O	S	S	S	S	O
D375 10	Radiations	S				S		S	S	S		
D376 10	Sound and Music	S		S	S			S	S	S	S	O
D023 10	Health and Technology	S		S	S		S	S	S	S	S	O
D0RE 10	Introducing Science Investigation Skills	S		O				S	S	S		
F59A 10	Health Sector: Life Sciences Industry	S	S	O	O		S	S	S	S	S	O
NPA Level 5 Practical Science Group Award — Mandatory Units												
EB75 11	Introduction to Chemistry	S		O	O		S	S	S	S		
D381 11	Waves and Optics	S		S	S			S	S	S	S	O
D382 11	Radioactivity	S		S	S			S	S	S	S	O
F1RH 11	The Human Body	S	S		O	S	S	S	S			
J45V 45	Forensic Science	S	S	O	O	S	S		S	S		

Key: S = Signposted within Unit specifications

O = Opportunities to develop Core Skills component depending on the learning and teaching approach.

5.4 Assessment Strategy for the qualifications

Science and Technology

Unit	Assessment			
	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Everyday Chemistry	Integrated end of Unit test (closed book)		Prescribed practical activity with observation and structured report	N/A
Telecommunications	Integrated end of Unit test (closed book)		Practical investigation with report	N/A
Electronics	Integrated end of Unit test (closed book)		Practical investigation with report	N/A
Biotechnological Industries	Closed-book supervised assessment	Practical work with checklist	Practical investigation with report	N/A
Science Practical Skills	Practical tasks with observation checklist		Written/oral evidence of presenting and calculating scientific experimental results	N/A
Working Safely	Short answer questions. Open book, supervised conditions.			N/A
The Science of Renewable Energy: An Introduction	Closed-book supervised assessment	Observation checklist of practicals	N/A	N/A

Science and Health

Unit	Assessment			
	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Chemistry and Life	Integrated end of Unit test (closed book)		Prescribed practical activity with observation and structured report	N/A
Radiations	Integrated end of Unit test (closed book)		Practical investigation with report	N/A
Sound and Music	Integrated end of Unit test (closed book)		Practical investigation with report	N/A
Health and Technology	Closed-book test	Practical work with checklist	Practical investigation with report	N/A
Introducing Science Investigation Skills	Structured worksheet relating to practical investigation	Individual practical investigation	Structured worksheet relating to practical investigation	N/A
Health Sector: Life Sciences Industry	Open-book evidence in candidate folio	Completion of investigation pro forma plus observation checklist.	N/A	N/A

Practical Science

Unit	Assessment			
	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Introduction to Chemistry	Written assessment (closed book)	Written assessment (closed book)	Written assessment (closed book)	Written assessment (closed book)
Waves and Optics	Integrated end of Unit test (closed book)		Practical activity with report	N/A
Radioactivity	Integrated end of Unit test (closed book)		Practical activity with report	N/A
The Human Body	Integrated end of Unit test (closed book)		Written or oral evidence of research topic	N/A
Forensic Science: Applications	Closed-book supervised assessment plus observation checklist of practicals.	Open-book written/oral assessment	Open-book written/oral assessment	N/A

6 Guidance on approaches to delivery and assessment

The nature of these awards allows for flexible delivery and may be delivered by centres as part of an articulated pathway in Science qualifications, ie to SCQF NC level 5 Applied Science or NPA Laboratory Science (level 6). Ideally they could be thought of as an introduction to applied science providing learners with the underpinning knowledge and skills to progress to SCQF level 5 and above. In relation to the rationale behind the suite of NPAs it should be remembered that they are meant to provide learners with a wide ranging experience of the applications of science helping them to make an informed choice with regards to their future study or career path. Further rationale is that the NPAs give bite sized courses that would allow learners to achieve full NPAs fairly quickly and be able to see progression and achievement in a short space of time. This gives learner motivation while providing an excellent foundation to progress to other courses; indeed, *within* the suite of NPAs it is possible to progress from level 4 to level 5 studies.

It should be noted that the NPAs would only act as a foundation (not as an access course) to progression courses and the prior experience gained could only help strengthen future applications, especially when prior knowledge and experience is also taken into consideration.

The flexibility of these awards lends itself to a variety of delivery approaches. It is suggested, however, that when considering delivery, award structure and selection of optional Units, centres should take account of the individual learner and their prior learning.

The suite of NPA qualifications could be delivered in colleges to college learners and to school/college partnership learners. If taken into schools or outreach centres an appropriate environment would be essential. They may be delivered on a part-time basis, or as a full-time programme of study.

6.1 Sequencing/integration of Units

There are a number of ways in which this award could be delivered and the sequence of delivery will depend on a number of factors including duration of the programme of study.

The three NPAs are designed to flow into each other but equally work well as standalone NPAs. Recommendation of delivery could be as follows:

Full-time 1 year programme

All three NPAs could be delivered in the following order:

NPA: Science and Technology
NPA: Science and Health
NPA: Practical Science

Whichever sequence centres choose for delivery, it is strongly recommended that the level 5 NPA: Practical Science is delivered last.

Part-time provision: Delivery would be dependent on the amount of weekly hours attended and type of learner group. For example if learners attended college one day per week it would be possible to complete the entire suite of NPAs in two years. Alternatively as an example, a single NPA could be completed in one academic year at four hours attendance per week or in two academic blocks at six hours per week.

The above are just examples for delivery of the three NPAs and are by no means exhaustive or mandatory modes of delivery. One of the main purposes of these NPAs is to offer centres complete flexibility while offering learners a relevant introduction to applied science.

The main approaches to learning in this course should be experiential and candidate centred. Candidates should have the opportunity to learn and develop practical skills in a laboratory as this will assist candidates in understanding the relevance of knowledge and understanding to practical tasks. Health and safety is integral to all practical tasks and should be emphasised at the start of, and throughout, each session as appropriate. Given the prescribed practical nature of teaching/learning and assessment in a significant number of Units, centres should ensure that teaching blocks are of a sufficient time to allow a meaningful experience for candidates.

A holistic approach should be considered when delivering any individual NPA or combination thereof, and it could be considered good practice to integrate Units where appropriate. This could involve for example (from NPA Science and Technology) Working Safely and Science Practical Skills Units being integrated within a practical environment or (from NPA Science and Health) Health and Technology and Health Sector: Life Sciences Industry being integrated, but it would be recommended that individual theory slots be given for these areas to provide coherent underpinning knowledge of each subject.

Further details about assessment can be found in the Unit specifications and the National Assessment Bank Materials (NABs). These documents detail all mandatory Evidence Requirements, providing centres with valuable information relating to assessment procedures and conditions for each assessment event. This will assist with standardisation both in and across centres.

6.2 Recognition of Prior Learning

SQA 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

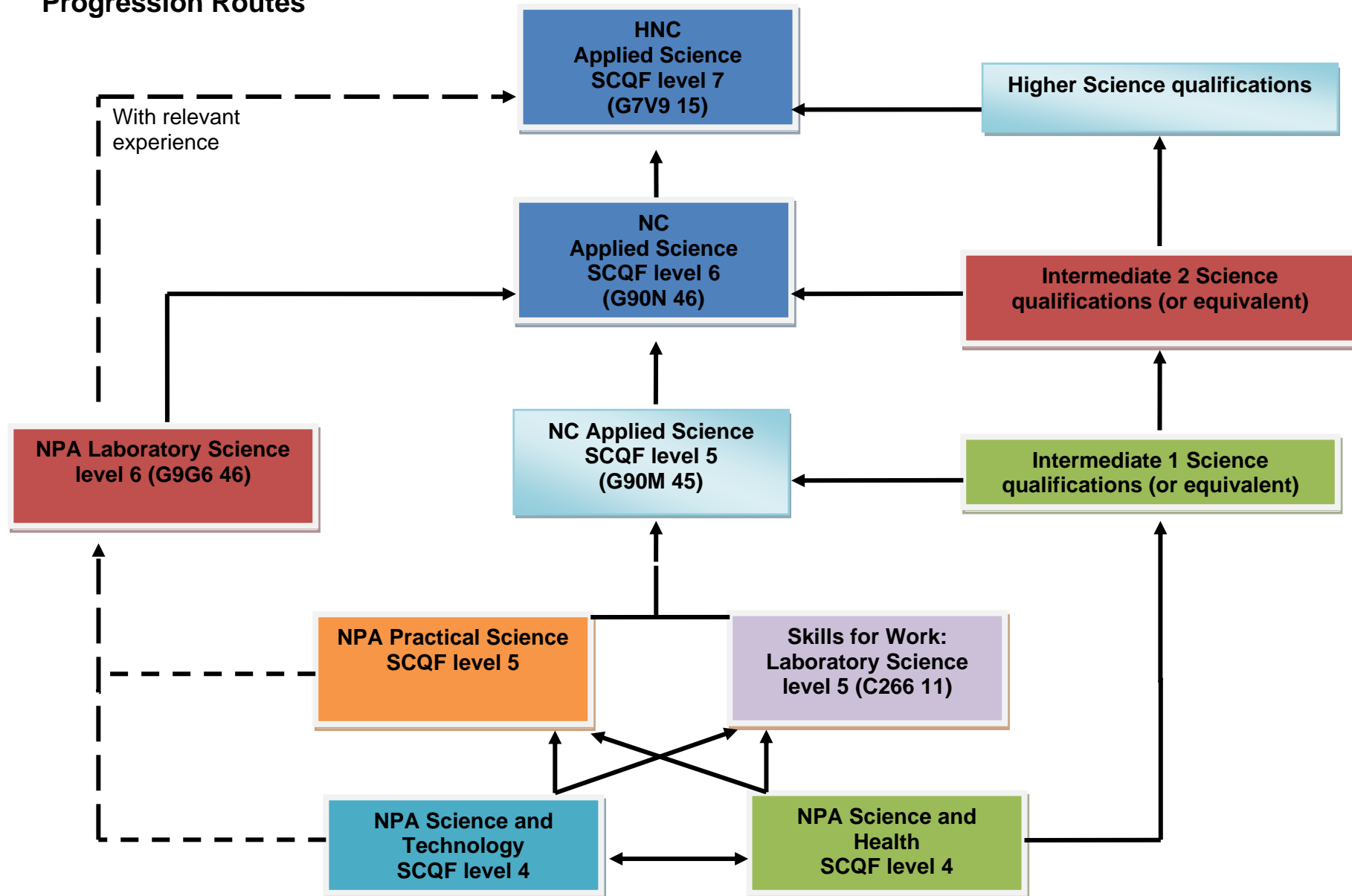
More information and guidance on the *Recognition of Prior Learning* (RPL) may be found on our website www.sqa.org.uk.

The following sub-sections outline how existing SQA Unit(s) 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

Although the NPA qualifications are not designed to articulate directly with a particular qualification, they do offer progression routes to a variety of existing SQA programmes as summarised here:

Progression Routes



6.3 Opportunities for e-assessment

Although the content of the Group Awards are not specifically designed as online or e-programmes there is scope for a blended learning approach embracing traditional methods with e-learning and e-assessment. Hence, delivery by distance learning is possible for theory elements of all Units, but the high level of practical work in all three NPAs means that it is not possible to complete a full NPA in this format. Alternative arrangements would need to be made to fulfil the mandatory practical aspects of relevant Units, and where such alternative methods are used, staff in centres must consider how they will ensure the authentication of candidate evidence.

Note however that some individual Units can be successfully undertaken in their entirety by distance learning, eg *The Human Body* (F1RH 11) and *Health Sector: Life Sciences Industry* (F59A 10).

6.4 Support materials

No ASPs were produced as part of the development of these Group Awards, however Centres should check with SQA as to whether ASPs already exist for individual Units within the relevant NPA structure. For example, the Units *Working Safely* (D11N 11) and *Science: Practical Skills* (F3TC 10) have an Assessment Support Pack.

Most Units in the NPAs have National Assessment Bank (NAB) packs which illustrate the standard that should be applied.

6.5 Resource requirements

Due to the level of the NPA awards (SCQF levels 4 and 5) it is anticipated that secondary schools and FE colleges should have sufficient facilities and resources to deliver the qualifications. In order to support the Unit *Biotechnological Industries* (D024 10) it is recommended that a member of staff (teaching or technical) has level 3 Microbiology training as defined by the Code of Practice for Scottish Schools and Colleges (SSERC).

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 www.sqa.org.uk/assessmentarrangements.

Internal and external verification

All assessments used within this/these qualification(s) should be internally verified, using the appropriate policy within the centre and the guidelines set by SQA.

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

Further information on internal and external verification can be found in *SQA's Guide to Assessment* (www.sqa.org.uk/GuideToAssessment).

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:

- ◆ candidates 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 SQA's website and archived
- ◆ no new centres may be approved to offer the Group Award
- ◆ centres should only enter candidates whom they expect to complete the Group Award during the defined lapsing period

SQA credit value: The credit value allocated to a Unit gives an indication of the contribution the Unit makes to an SQA Group Award. An SQA credit value of 1 given to an SQA 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 6–9 and Graded Units will be at level 7 and 8. National Qualification Group Awards are available at SCQF levels 2–6 and will normally be made up of National Units which are available from SCQF levels 2–7.

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 SQA's APS Navigator to confirm they are using the up to date qualification structure.

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 candidates for the Unit which has been revised where they are expected to complete the Unit before its finish date.

Version Number	Description	Date

Acknowledgement

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

9 General information for learners

This section 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.

NPA in Science and Technology at SCQF level 4

The NPA in Science and Technology at SCQF level 4 has been designed to provide a qualification which will equip you with a range of skills and knowledge in key areas of science. These skills will be beneficial for progression to further qualifications and would also be considered as transferable skills that will travel with you wherever your future lies.

The Group Award: NPA in Science and Technology at SCQF level 4 will provide you with knowledge and understanding of biology, chemistry and physics as well as with practical laboratory skills in each area. You will use a variety of scientific techniques incorporating a range of equipment which will aid and enhance your learning experience and development. In addition, you will develop effective preparation skills and an awareness of health and safety required to carry out safe scientific work.

Mandatory Units

The mandatory Units are designed in order to ensure that you gain experience and skills in the following areas:

- ◆ Biology (Biotechnology Industries)
- ◆ Chemistry (Everyday Chemistry)
- ◆ Physics (Telecommunications and Electronics)
- ◆ Practical Work (all Units named above)

The following is a summary of the Unit content for the mandatory Units of this Group Award:

Everyday Chemistry

This Unit seeks to develop knowledge and understanding, problem solving and practical abilities in the context of metals; personal needs; fuels; and plastics.

Telecommunications

The Unit seeks to develop the candidate's knowledge and understanding of simple concepts and facts related to telecommunications. It also provides an opportunity for developing the ability to apply this knowledge and understanding in the analysis of simple problems.

Electronics

The Unit seeks to develop the candidate's knowledge and understanding of simple concepts and facts related to electronics. It also provides an opportunity for developing the ability to apply this knowledge and understanding in the analysis of simple problems.

Biotechnology Industries

The Unit seeks to develop knowledge and understanding, problem solving and practical abilities related to the applications of biology to industry.

Optional Units

The optional Units have been chosen to compliment the mandatory section of the award and allow for a single credit of work which covers all three sciences, again with a practical emphasis. The choice is designed to suit those looking to pursue either a physical science/engineering route or alternatively, a life science route.

The Science of Renewable Energy: An Introduction

The purpose of the Unit is to provide candidates with the knowledge and skills to enable them to gain an understanding of the biology, chemistry and physics behind renewable energies.

The Unit provides a broad introduction to the world of renewable energy and is aimed at candidates with little or no formal science qualifications, but who have a desire to gain knowledge and skills in this area of applied science.

Science Practical Skills

This Unit is designed to enable candidates to gain some practical experience in measuring quantities, basic laboratory skills and calculating and presenting results. Candidates will be involved in a number of practical exercises which will help them develop practical skills in a scientific context. These exercises could take place in the laboratory or in the field.

Working Safely

This Unit is designed to introduce the candidate to the basic concepts of health and safety, in particular the requirement of all workers to adhere to safe working practices, which will help to maintain their own health, safety and welfare, as well as that of others who may be affected by the work activities.

The focus of this Group Award is candidate-centred and covers a mix of theory and practical. It is designed to provide an opportunity to learn about biology, chemistry and physics in a context relevant to everyday life ie applications of technology. The knowledge gained here will help with practical performance in these subjects, enabling you to develop skills relevant to employment.

Overall, the content of the Group Award has been designed to provide you with an opportunity for:

- ◆ progression within the Scottish Credit and Qualifications Framework
- ◆ achievement of a national award that recognises existing skills and competences in science

- ◆ development opportunities in core and essential skills, specifically to:
 - Communications
 - ICT
 - Numeracy
 - Working with Others
 - Problem Solving
 - Employability skills
- ◆ preparation for progression to SCQF level 5 in science or engineering
- ◆ development of a range of key skills that are aligned to industry standards

Progression pathways

This NPA is suitable if you are at school or college, have just left school or are an adult learner or returner and may be delivered through a part-time or full-time programme. The NPA in Science and Technology at SCQF level 4 is a recognised qualification and will give you a platform which may allow progression into further education. This could involve progression to SCQF level 5 NPA in Practical Science or SCQF level 6 NPA in Laboratory Science. Although the focus of the NPA is science an interest in engineering may be discovered and so may progress to further courses within this area.

This Group Award will help prepare you for employment by providing transferrable skills or it may also meet the needs of those already in lower level employment within the science industry by providing a suitable starting point if you are looking to gain formal qualifications relevant to your current job.

NPA in Science and Health at SCQF level 4

The NPA in Science and Health at SCQF level 4 has been designed to provide a qualification which will equip you with a range of skills and knowledge in key areas of science. These skills will be beneficial for progression to further qualifications and would also be considered as transferable skills that will travel with you wherever your future lies.

The Group Award: NPA in Science and Health at SCQF level 4 will provide you with knowledge and understanding of biology, chemistry and physics as well as with practical laboratory skills in each area. You will use a variety of scientific techniques incorporating a range of equipment which will aid and enhance your learning experience and development. In addition, you will develop effective preparation skills and an awareness of health and safety required to carry out safe scientific work.

The Units are designed in order to ensure that you gain experience and skills in the following areas:

- ◆ Biology (Health and Technology)
- ◆ Chemistry (Chemistry and Life)
- ◆ Physics (Radiations and Sound and Music)
- ◆ Practical Work (Introducing Science Investigation Skills and all Units named above)
- ◆ Applications of science in relation to human health (Health Sector: Life Sciences Industry)

The following is a summary of the Unit content for the mandatory Units of this Group Award:

Chemistry and Life

The Unit seeks to develop knowledge and understanding, problem solving and practical abilities in the context of photosynthesis and respiration; the effects of chemicals on the growth of plants; food and diet; and drugs.

Radiations

The Unit seeks to develop the candidate's knowledge and understanding of simple concepts and facts related to radiations. It also provides an opportunity for developing the ability to apply this knowledge and understanding in the analysis of simple problems.

Sound and Music

This Unit seeks to develop the candidate's knowledge and understanding of simple concepts and facts related to sound and music. It also provides an opportunity for developing the ability to apply this knowledge and understanding in the analysis of simple problems.

Health and Technology

The Unit seeks to develop knowledge and understanding, problem solving and practical abilities related to the use of technology in measuring, recording and monitoring health.

Science Investigation Skills

This Unit is designed to introduce the student to the techniques used in scientific investigations. The student will develop his/her ability to apply scientific knowledge and practical skills in problem-solving situations.

Health Sector: Life Sciences Industry

This Unit introduces candidates to the range of product types made by the life sciences industry and their application in the health sector. Candidates will participate in a practical activity which will help to develop knowledge and skills in the correct use of a biomedical device.

The focus of this Group Award is candidate-centred and covers a mix of theory and practical. It is designed to provide an opportunity to learn about biology, chemistry and physics in a context relevant to everyday life, ie human health. The knowledge gained here will help with practical performance in these subjects, enabling you to develop skills relevant to employment.

Overall, the content of the Group Award has been designed to provide you with an opportunity for:

- ◆ progression within the Scottish Credit and Qualifications Framework
- ◆ achievement of a national award that recognises existing skills and competences in science
- ◆ development opportunities in core and essential skills, specifically to:
 - Communications
 - ICT
 - Numeracy
 - Working with Others
 - Problem Solving
 - Employability skills

- ◆ preparation for progression to SCQF Level 5 in areas related to human health
- ◆ development of a range of key skills that are aligned to industry standards.

Progression pathways

This NPA is suitable if you are at school or college, have just left school or are an adult learner or returner and may be delivered through a part-time or full-time programme. The NPA in Science and Health at SCQF level 4 is a recognised qualification and will give you a platform which may allow progression into further education. This could involve progression to SCQF level 5 NPA in Practical Science or SCQF level 6 NPA in Laboratory Science. Because the focus of the NPA is human health an interest in related areas such as nursing, sports science or beauty therapy may be discovered and so may progress to further courses within this area.

This Group Award will help prepare you for employment by providing transferrable skills or it may also meet the needs of those already in lower level employment within the science industry by providing a suitable starting point if you are looking to gain formal qualifications relevant to your current job.

NPA in Practical Science at SCQF level 5

The NPA in Practical Science at SCQF level 5 has been designed to provide a qualification which will equip you with a range of skills and knowledge in key areas of science. These skills will be beneficial for progression to further qualifications and would also be considered as transferable skills that will travel with you wherever your future lies.

The Group Award: NPA in Practical Science at SCQF level 5 will provide you with knowledge and understanding of biology, chemistry and physics as well as with practical laboratory skills in each area. You will use a variety of scientific techniques incorporating a range of equipment which will aid and enhance your learning experience and development. In addition, you will develop effective preparation skills and an awareness of health and safety required to carry out safe scientific work.

The Units are designed in order to ensure that you gain experience and skills in the following areas:

- ◆ Biology (The Human Body)
- ◆ Chemistry (Introduction to Chemistry)
- ◆ Physics (Radioactivity and Waves and Optics)
- ◆ Practical Work (all Units named above)
- ◆ Applications of all three sciences (Forensic Science)

The following is a summary of the Unit content for the mandatory Units of this Group Award:

Introduction to Chemistry

In this Unit candidates are able to apply various chemical concepts including: the concept of a chemical reaction in a variety of situations, the concept of structure and bonding to a variety of substances, and the concept of neutralisation, as well as relating atomic structure to the Periodic Table.

Waves and Optics

This Unit seeks to develop the candidate's knowledge and understanding of the basic concepts and principles related to waves and optics. The Unit also provides an opportunity for developing the ability to apply these concepts and principles in the analysis of a wide variety of applications.

Radioactivity

This Unit seeks to develop the candidate's knowledge and understanding of the basic concepts and principles related to radioactivity. The Unit also provides an opportunity for developing the ability to apply these concepts and principles in the analysis of a wide variety of applications.

The Human Body

This Unit is designed to provide an introduction to the structure and function of the human body. In this Unit candidates will learn the organisation of major systems within the human body and, using specific components as examples, develop an understanding of the relationship between structure and function in each of these systems. Candidates will apply this knowledge to investigate how common disease or injury leads to changes in function. The Unit is suitable for candidates who wish to progress to employment or study of a variety of subjects where a basic knowledge of human biology is required.

Forensic Science: Applications

This Unit introduces candidates to fundamental techniques of forensic science allowing them to develop skills in biology, chemistry and physics in this contemporary context. The Unit also enables candidates to develop basic research and information handling skills. It is suitable for candidates with an interest in general science and its practical applications as well as for those who are looking to access further studies in forensic related areas.

The focus of this Group Award is candidate-centred and covers a mix of theory and practical. It is designed to provide an opportunity to learn about biology, chemistry and physics which collectively will then be applied in understanding the science of forensics. The knowledge gained here will help with practical performance in these subjects, enabling you to develop skills relevant to employment.

Overall, the content of the Group Award has been designed to provide you with an opportunity for:

- ◆ progression within the Scottish Credit and Qualifications Framework
- ◆ achievement of a national award that recognises existing skills and competences in science
- ◆ development opportunities in core and essential skills, specifically to:
 - Communications
 - ICT
 - Numeracy
 - Working with others
 - Problem solving
 - Employability skills
- ◆ preparation for progression to extended programmes of study at SCQF level 5 or above.

Progression pathways

This NPA is suitable if you are at school or college, have just left school or are an adult learner or returner and may be delivered through a part-time or full-time programme. The NPA in Practical Science at SCQF level 5 is a recognised qualification and will give you a platform which may allow progression into further education. This could involve progression to SCQF level 5 NC in Applied Science or SCQF level 6 NPA in Laboratory Science. Although the focus of the NPA is general practical science the level of knowledge and understanding gained here should allow you to make an informed choice on the area of science you wish to study further.

This Group Award will help prepare you for employment by providing transferrable skills or it may also meet the needs of those already in lower level employment within the science industry by providing a suitable starting point if you are looking to gain formal qualifications relevant to your current job.