Group Award Specification for:

HNC Applied Sciences at SCQF level 7

Group Award Code: GK6E 15

Validation March 2015

Date of original publication: April 2015

Version: 18 November 2024

Contents

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

This is the Group Award Specification for the HNC Applied Sciences, and it is a revision of the HNC Applied Sciences which had previously been validated in 2005.

Following a detailed consultation process, it was confirmed that a review of the following Group Awards was required: HNC Applied Sciences, HND Applied Sciences, HND Applied Biological Sciences, HND Biomedical Sciences, HND Biotechnology, HND Applied Chemistry and HND Environmental Sciences. The review was to ensure that the Group Awards remain fit-for-purpose and satisfy both current and future industry and education markets. The current HNC Applied Sciences Group Award has had successful outcomes and a healthy uptake since its inception, but it now requires modernisation.

Key aspects of the modernisation are to provide greater emphasis to the development of practical laboratory skills and good laboratory practice. In addition, following feedback from industry, higher education institutions and current and former learners it was identified that there was a strong demand to provide a physics ‘route’ within the award.

The HNC Applied Sciences Group Award is a general science qualification that allows learners to gain skills and knowledge in the applied sciences and essential skills by providing learners with an exposure to each of the main branches of science: chemistry, physics, biology, thus giving them the knowledge and skills necessary to progress to more specialised branches of science.

Qualifications Design Teams (QDT) were created to support the development process in consultation with employers and higher education colleagues and further education partners. All stakeholders recognised the need for flexibility in the Group Award so that the needs of small groups of learners can be met alongside large cohorts. In designing the Group Award, the QDT has been fully aware of the need for the Group Award to contain relevant technical and transferable skills to enable immediate entry to employment while at the same time allowing articulation to degree courses. The QDT believes that an appropriate balance between academic and vocational knowledge and skills has been achieved throughout the mix of Unit content and potential teaching approaches.

The HNC Applied Sciences Group Award is designed for both full and part-time learners and the target audience is those who wish to progress to further study or to take up a career in science-based industries.

The theoretical content may be delivered by open and distance learning methods, provided that adequate preparations are made. Additional planning and resources will be needed for learner support and assessment. Quality assurance procedures must also be sufficient and robust in order to support open and distance learning.

Currently, the HNC award is embedded in the Modern Apprenticeship in Life Sciences and Related Industries at level 3 which is related directly to an array of National Occupational Standards. These are embraced in the range of SVQs defined in the Modern Apprenticeship in Life Sciences.

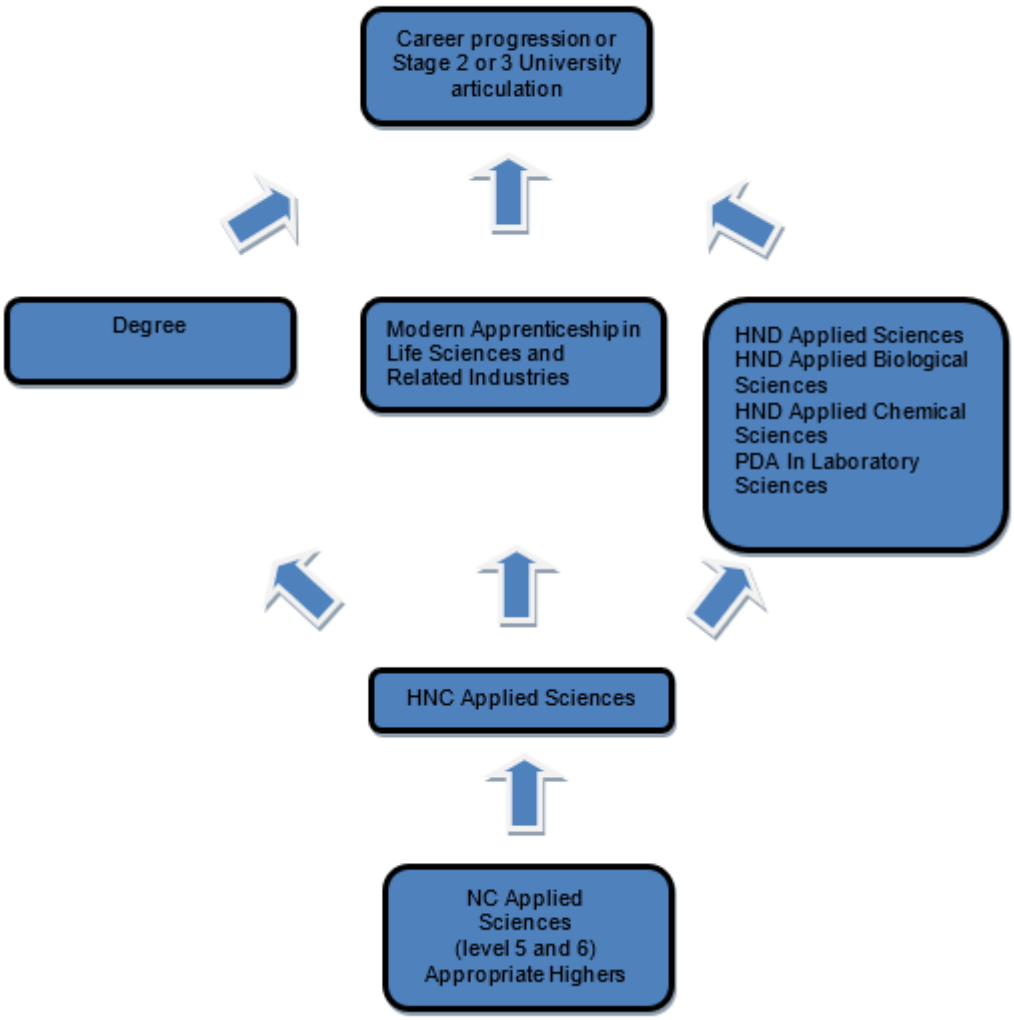
The Group Award is designed as a discrete, specialised qualification to equip learners with the knowledge, skills and understanding required for employment or progression to further academic study and may be seen to be supporting the national strategies and drivers as outlined below.

The Scottish Life Sciences Strategy states that 'the Life Sciences industry in Scotland is recognised by both UK and Scottish Governments as one with high growth potential and the capacity to contribute significantly to the nation's productivity. Scotland hosts the UK's second largest Life Sciences cluster and one of the most sizeable in Europe. The sector contributes some £1.5 bn of GVA a year and turnover worth £3.1 bn to the Scottish economy.' The provision of this new Group Award will help to meet the needs of industry.

The Wood Commission Report emphasised that 'moving beyond school, we must ensure that young people at college pursue studies with an expectation that they will lead successfully to employment in the prevailing labour market. The newly formed regional colleges, through more focused and ambitious outcome agreements, and working closely with industry, should ensure that a college education provides skills and qualifications relevant to the market requirements and in particular the new challenges of the modern technology orientated economy.' And that 'as they move into the senior phase, young people of all abilities should have the opportunity to follow industry relevant vocational pathways alongside academic studies.'

The current review has allowed the Group Award to take into account changes that have taken place due to the introduction of Curriculum for Excellence, inclusion of updated technical data, revised assessment strategies, flexibility to meet the needs of industry and recognition of the needs of learners for progression to higher education.

It was agreed at the SQA Higher National Science event in 2013 to maintain a single HNC Group Award, HNC Applied Sciences, from which learners could progress to three alternative HND awards: HND Applied Sciences; HND Applied Biological Sciences; HND Applied Chemical Sciences. The interrelationship of the revised HNC/HNDs with other qualifications is illustrated by the diagram following:


Career progression or Stage 2 or 3 University articulation
Degree
Modern Apprenticeship in Life Sciences and Related Industries
HND Applied Sciences
HND Applied Biological Sciences
HND Applied Chemical Sciences
PDA In Laboratory Sciences
HNC Applied Sciences
NC Applied Sciences (level 5 and 6) Appropriate Highers

2 Qualification structure

Mandatory Units (5 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
H91W	34	Applied Sciences: Graded Unit 1	7	8	1
H91V	34	Laboratory Skills for Science Industries	7	16	2
H92X	34	Fundamental Chemistry: Theory and Laboratory Skills	7	16	2

Mandatory Units (1–2 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
H8XP	33	Mathematics for Science 1	6	8	1
H8XT	33	Statistics for Science 1	6	8	1

Mandatory Units (1–4 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
J2RE*	34	Cell Biology: Theory and Laboratory Skills	7	8	1
J5RT*	34	Physics for Life Sciences	7	8	1
J5RV*	34	Physics 2	7	8	1
H922	34	Biochemistry: Theory and Laboratory Skills	7	8	1

Depending on the number of credits achieved in the mandatory sections above, learners must complete 1–5 credits from optional Sections A–D.

Optional Section A — Level 6 Units (0–1 credit)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
H92W	33	Fundamental Chemistry: An Introduction	6	8	1
H923	33	Biology: An Introduction	6	8	1
H93D	33	Physics 1	6	8	1

Optional Section B (0–5 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
H92Y	34	Inorganic Chemistry: Theory and Laboratory Skills	7	8	1
H933	34	Organic Chemistry: Theory and Laboratory Skills	7	8	1
H936	34	Physical Chemistry: Theory and Laboratory Skills	7	8	1
H92G	34	Microbiology: Theory and Laboratory Skills	7	16	2
H922	34	Biochemistry: Theory and Laboratory Skills	7	8	1
J5RT*	34	Physics for Life Sciences	7	8	1
J2RF	34	DNA and Genetics*	7	8	1
J2RE	34	Cell Biology: Theory and Laboratory Skills*	7	8	1
J4RA*	34	Ecology and Ecosystems	7	8	1
D75X	34	Information Technology: Applications Software 1	7	8	1
H920	34	Animal and Plant Cell Culture: An Introduction	7	8	1
H91T	34	Applied Biochemical Techniques	7	8	1
J4RC*	34	Environmental Awareness	7	8	1
J5RV*	34	Physics 2	7	8	1
H93G	34	Physics Principles: Heat and Thermodynamics	7	8	1
H93H	34	Physics Principles: Mechanics	7	8	1
H93L	34	Electricity and Magnetism	7	8	1
DN36	34	Earth Science	7	8	1
DN38	34	Sustainable Development	7	8	1
H92K	34	Science Industry: Key Issues	7	8	1
H926	34	Biotechnology: An Introduction	7	8	1
H8XV	34	Statistics for Science 2	7	8	1
H8XR	34	Mathematics for Science 2	7	8	1
DF82	34	Quality and Health & Safety Systems in Science Industries	7	8	1

Optional Section C (0–3 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
J5R2*	35	Instrumental Techniques 1	8	8	1
H937	35	Spectroscopic and Analytical Techniques	8	8	1
H921	35	Animal Biology	8	8	1
H92H	35	Plant Biology	8	8	1
H93J	35	Physics: Light and Optics	8	8	1
H93M	35	Electronics	8	8	1
J676*	35	Relativity and Quantum Mechanics	8	8	1
H934	35	Organic Stereochemistry: Theory and Laboratory Skills	8	8	1
H92C	35	Human Body Structure and Function	8	16	2
DT4X	35	Environmental Sampling and Analysis	8	8	1
H92V	35	Environmental Chemistry: Theory and Laboratory Skills	8	8	1
H92R	35	Chemistry: Laboratory Practical Skills	8	8	1
H92J	35	Protein Structure and Function	8	8	1
H939	35	Transition Metal Chemistry: Theory and Laboratory Skills	8	8	1
H938	35	Thermodynamics and Kinetics: Theory and Laboratory Skills	8	8	1
H92M	35	Applications of Transition Metal Compounds	8	8	1
H92N	35	Aromatic Chemistry: Theory and Laboratory Skills	8	8	1
H92P	35	Base-Catalysed and Organometallic Chemistry: Theory and Laboratory Skills	8	8	1
H92T	35	Electrochemistry	8	8	1
H931	35	Instrumental Techniques 2	8	8	1
H932	35	Main Group Inorganic Chemistry	8	8	1
H935	35	Phase Equilibrium and Surface Chemistry	8	8	1
H92A	35	DNA Molecular Techniques	8	16	2
H92E	35	Immunological Techniques	8	8	1
J2GM*	35	Microbiological Techniques	8	16	2
J7XD	35	Maxwell’s Equations	8	8	1
H925	35	Biomedical Pathology	8	8	1
H928	35	Cellular Signalling	8	8	1
H924	35	Biomedical Investigations	8	8	1

Optional Section D — Broadening Units (0–2 credits)

Code		Unit title	SCQF level	SCQF credit points	SQA credit
DE3R	34	Personal Development Planning	7	8	1
D77H	34	Employment Experience 2	7	8	1

*Refer to History of Changes for revision changes.

This Group Award is made up of 96 SCQF credit points (12 SQA Unit credits). A minimum of 56 SCQF credit points are required to be achieved from the mandatory sections. Depending on the SCQF credit points achieved from the mandatory sections, a further 8–40 SCQF credit points are required from the optional Sections A–D.

It is anticipated that the majority of the Units will be achieved at SCQF level 7, including the *Applied Sciences: Graded Unit 1*.

SCQF level 6 Units are included in the framework, and they are aimed at learners with little or no subject knowledge and should be used as a building Unit to allow achievement of the mandatory SCQF level 7 Unit. The number of SCQF level 6 Units which contribute to the framework has been restricted in order to ensure the competency level is maintained. A total of 0–24 SCQF credit points can be achieved from the SCQF level 6 Units, with the remainder of the SCQF credits points achieved from a combination of SQCF level 7 and 8 Units. Centres who recruit learners requiring to undertake more than one SCQF level 6 Unit from Section A of the Group Award framework should offer the necessary building Units in addition to the Group Award.

The *Applied Sciences: Graded Unit 1* is an investigative report. The purpose of the *Applied Sciences: Graded Unit 1* is to assess the learner's ability to integrate and apply the knowledge and skills gained in the individual Units in order to demonstrate that they have achieved the specific aims of the Group Award and to grade learner achievement.

3 Aims of the qualification

The overall aim of the HNC Applied Sciences Group Award is to provide a progressive, integrated and coherent education which will be responsive to the needs of learners and employers.

3.1 General aims of the qualification

The general aims of the HNC Applied Sciences Group Award are to develop:

- knowledge of study, research and analysis.
- ability to define and solve problems.
- transferable skills.
- ability to be flexible and work co-operatively with others.
- responsibility for own learning.
- planning, organisation and review/evaluation skills.
- oral and written scientific communication skills.
- numerical and ICT skills.

- employability skills.
- flexibility, knowledge, skills and motivation as a basis for progression to further study within Higher National qualifications and/or graduate studies.

3.2 Specific aims of the qualification

The aims of the HNC Applied Sciences Group Award specify the knowledge and skills required in order to be deemed competent in this subject/occupational area.

The specific aims of the HNC Applied Sciences Group Award are to:

- prepare learners for an appropriate level of employment, in science areas such as research and industrial laboratories; biotechnology, biological, chemical, microbiological, pharmaceutical and environmental.
- develop a range of contemporary vocational skills relating to the use, support and development of systems appropriate to employment at technician or professional level.
- provide learners with a range of skills to support learning in relevant SVQ 3 level programmes.
- provide learners with an element of vocational specialisation in a variety of areas such as biotechnology, chemical, therapeutics, diagnostics, agriculture, energy, veterinary and environmental science.
- prepare learners for progression to further studies in science related disciplines.
- provide a flexible route to the Group Award, allowing access to those in employment through part-time study and full-time provision.
- provide an opportunity for learners to discover which areas of science most interest them by providing experience of each of the main branches of science.
- provide a wider range of practical laboratory skills to enhance job prospects through the practical content of the course.
- provide learners with a sound academic basis for the continuing development of practical and conceptual skills.

3.3 Graded Units

The purpose of the Graded Unit is to assess the learner's ability to integrate and apply the knowledge and skills gained in individual Units to demonstrate that they have achieved the specific aims.

Learners will undertake a 1 credit Graded Unit at SCQF level 7.

The *Applied Sciences: Graded Unit 1* at SCQF level 7 will take the form of an investigation report. It will cover a range of skills achieved through studying the mandatory Units within the Group Award. It allows learners to use research skills, set timescales, identify main issues, methods and sources of research and develop scientific reporting skills.

Learners will be required to produce reports covering planning, development and evaluation of the investigation.

The investigation allows learners to integrate knowledge and skills gained in the mandatory Units and to maximise such opportunities. Delivery of *the Applied Sciences: Graded Unit 1* should take place during the latter stages of the award.

The *Applied Sciences: Graded Unit 1* is designed to provide evidence that the learner has achieved the following aims of the HNC Applied Sciences Group Award:

- Develop learners' knowledge and skills such as planning, developing and evaluating.
- Develop employment skills and enhance learners' employment prospects.
- Enable progression within the Scottish Credit and Qualifications Framework (SCQF).
- Develop transferable skills including Core Skills.
- Prepare for employment in a science related post at technician or professional level.
- Develop a range of vocational skills appropriate to employment at technician or professional level in the science sector.

In addition, learners will develop a variety of supplementary skills which enhance life skills and the educational experience. These skills are associated with enterprise, employability, sustainability and citizenship.

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 Qualifications Design Team (QDT) as guidance only.

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 minimum of one science qualification at Grade C or above at Higher level, with appropriate supporting qualifications at National 5 level (or equivalent) in relevant science and mathematics subjects.
- NC Applied Sciences level 6.
- Qualifications in appropriate science and mathematics programmes, such as Access programmes. Learners should have gained some Units at Higher level in appropriate science.
- Suitable work experience gained in a science laboratory.

It is intended that admission to the HNC Applied Sciences Group Award should be as broadly based as possible, but that this should be consistent with the selection of learners who have the appropriate knowledge and skills to successfully achieve the HNC Applied Sciences Group Award.

4.1 Core Skills entry profile

The Core Skills entry profile provides a summary of the associated assessment activities that exemplify why a particular level has been recommended for this Group Award. Whilst learners will naturally use and develop aspects of all five Core Skills as they work through the Units making up the Group Award, the information below should be used to identify if additional learning support needs to be put in place. This may be necessary for learners whose Core Skills profile is below the recommended entry level or where learners need to undertake supporting Units in order to develop one (or more) particular Core Skills. Indeed, it may help identify whether learners should be encouraged to do an alternative level or learning programme.

It should be noted that although there is no mandatory entry and exit levels the following is recommended:

Core Skill	Recommended SCQF entry profile	Associated assessment activities
Communication	SCQF level 5	Research, analysis, reports, oral presentation
Numeracy	SCQF level 5	Numerical and graphical presentation, numerical and algebraic calculations
Information and Communication Technology (ICT)	SCQF level 5	Accessing information for research purposes, assimilation and analysis of research information, creation of graphical and narrative material for report and presentation purposes
Problem Solving	SCQF level 5	Critical thinking, planning and evaluation
Working with Others	SCQF level 4	Co-operative working as part of a team for practical activities

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 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

Code	Unit title	General Aims									
		1	2	3	4	5	6	7	8	9	10
H91V 34	Laboratory Skills for Science Industries	X	X	X	X	X	X	X	X	X	X
H91W 34	Applied Sciences: Graded Unit 1	X	X	X		X	X	X	X	X	X
H92X 34	Fundamental Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H8XP 33	Mathematics for Science 1	X	X	X		X	X		X	X	X
H8XT 33	Statistics for Science 1	X	X	X		X	X		X	X	X
J2RE 34	Cell Biology: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
J5RT 34*	Physics for Life Sciences	X	X	X	X	X	X	X	X	X	X
H922 34	Biochemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92W 33	Fundamental Chemistry: An Introduction	X	X	X	X	X	X	X	X	X	X
H923 33	Biology: An Introduction	X	X	X	X	X	X	X	X	X	X
H93D 33	Physics 1	X	X	X	X	X	X	X	X	X	X
H92Y 34	Inorganic Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H933 34	Organic Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H936 34	Physical Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92G 34	Microbiology: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
J2RF 34	DNA and Genetics	X	X	X	X	X	X	X	X	X	X
J4RA* 34	Ecology and Ecosystems	X	X	X	X	X	X	X	X	X	X
D75X 34	Information Technology: Applications Software 1		X	X		X	X		X	X	X
H91T 34	Applied Biochemical Techniques	X	X	X	X	X	X	X	X	X	X
H920 34	Animal and Plant Cell Culture: An Introduction	X	X	X	X	X	X	X	X	X	X
J4RC 34*	Environmental Awareness	X	X	X	X	X	X	X	X	X	X

Code	Unit title	General Aims									
		1	2	3	4	5	6	7	8	9	10
J5RV 34*	Physics 2	X	X	X	X	X	X	X	X	X	X
H93G 34	Physics Principles: Heat and Thermodynamics	X	X	X	X	X	X	X	X	X	X
H93H 34	Physics Principles: Mechanics	X	X	X	X	X	X	X	X	X	X
H93L 34	Electricity and Magnetism	X	X	X	X	X	X	X	X	X	X
DN36 34	Earth Science	X	X	X	X	X	X	X	X	X	X
DN38 34	Sustainable Development	X	X	X	X	X	X	X	X	X	X
H92K 34	Science Industry: Key Issues	X	X	X	X	X	X	X	X	X	X
H926 34	Biotechnology: An Introduction	X	X	X	X	X	X	X	X	X	X
DF82 34	Quality and Health & Safety Systems in Science Industries	X	X	X		X	X	X	X	X	X
J5R2 35*	Instrumental Techniques 1	X	X	X	X	X	X	X	X	X	X
H937 35	Spectroscopic and Analytical Techniques	X	X	X	X	X	X	X	X	X	X
H921 35	Animal Biology	X	X	X	X	X	X	X	X	X	X
H92H 35	Plant Biology	X	X	X	X	X	X	X	X	X	X
H93J 35	Physics: Light and Optics	X	X	X	X	X	X	X	X	X	X
H93M 35	Electronics	X	X	X	X	X	X	X	X	X	X
J676 35*	Relativity and Quantum Mechanics	X	X	X	X	X	X	X	X	X	X
H934 35	Organic Stereochemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92C 35	Human Body Structure and Function	X	X	X	X	X	X	X	X	X	X
DT4X 35	Environmental Sampling and Analysis	X	X	X	X	X	X	X	X	X	X
H92V 35	Environmental Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X

Code	Unit title	General Aims									
		1	2	3	4	5	6	7	8	9	10
H8XR 34	Mathematics for Science 2	X	X	X		X	X		X	X	X
H8XV 34	Statistics for Science 2	X	X	X		X	X		X	X	X
DE3R 34	Personal Development Planning		X	X		X	X		X	X	X
D77H 34	Employment Experience 2		X	X	X	X	X	X	X	X	X
H92R 35	Chemistry: Laboratory Practical Skills	X	X	X	X	X	X	X	X	X	X
H92J 35	Protein Structure and Function	X	X	X		X	X	X	X	X	X
H939 35	Transition Metal Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H938 35	Thermodynamics and Kinetics: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92M 35	Applications of Transition Metal Compounds	X	X	X		X	X		X	X	X
H92N 35	Aromatic Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92P 35	Base-Catalysed and Organometallic Chemistry: Theory and Laboratory Skills	X	X	X	X	X	X	X	X	X	X
H92T 35	Electrochemistry	X	X	X	X	X	X	X	X	X	X
H931 35	Instrumental Techniques 2	X	X	X	X	X	X	X	X	X	X
H932 35	Main Group Inorganic Chemistry	X	X	X	X	X	X	X	X	X	X
H935 35	Phase Equilibrium and Surface Chemistry	X	X	X	X	X	X	X	X	X	X
H92A 35	DNA Molecular Techniques	X	X	X	X	X	X	X	X	X	X
H92E 35	Immunological Techniques	X	X	X	X	X	X	X	X	X	X
J2GM 35	Microbiological Techniques	X	X	X	X	X	X	X	X	X	X
J7XD 35	Maxwell’s Equations	X	X	X	X	X	X	X	X	X	X
H925 35*	Biomedical Pathology	X	X	X		X	X	X	X	X	X
H928 35	Cellular Signalling	X	X	X		X	X	X	X	X	X
H924 35	Biomedical Investigations	X	X	X		X	X	X	X	X	X

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

The HNC Applied Sciences Group Award has been mapped against the level 3 SVQ Life Sciences and Related Industries.

Code	National Occupational Standard	Laboratory Skills for Science Industries (H91V 34)	Fundamental Chemistry: Theory and Laboratory Skills (H92X 34)	Mathematics for Science 1 (H8XP 33)	Statistics for Science 1 (H8XT 33)	Cell Biology: Theory and Laboratory Skills (J2RE 34)	Physics for Life Sciences (J5RT 34)	Biochemistry: Theory and Laboratory Skills (H922 34)
H6F2 04	Maintain Effective and Efficient Working Relationships	X	X			X	X	X
H6F3 04	Prepare For and Clearing Up After a Learning Activity	X	X			X	X	X
H6F4 04	Provide Support for Learning Activities							
H6F5 04	Maintain Stocks of Resources, Equipment and Consumables	X	X					X
H6F6 04	Use Information Recording Systems							
H6F8 04	Carry out Testing using Manual or Automated Equipment	X	X			X		X
H6F9 04	Carry out Sampling Operations	X	X			X		X
H6FA 04	Drawing Blood Samples from Patients for Investigation							
H6FB 04	Carry out Small Scale Processing							
H6FC 04	Preparing Reagents	X	X					X
H6FD 04	Receiving, Sorting, Transporting and Storing Samples	X	X			X		X
H6FF 04	Operating in a Clean Room or Aseptic Facility							

Code	National Occupational Standard	Laboratory Skills for Science Industries (H91V 34)	Fundamental Chemistry: Theory and Laboratory Skills (H92X 34)	Mathematics for Science 1 (H8XP 33)	Statistics for Science 1 (H8XT 33)	Cell Biology: Theory and Laboratory Skills (J2RE 34)	Physics for Life Sciences (J5RT) 34)	Biochemistry: Theory and Laboratory Skills (H922 34)
H6FG 04	Preparing Biological Specimens or Samples for Investigations	X				X		X
H6FJ 04	Maintain Health and Safety Procedures	X	X			X	X	X
H6FK 04	Provide Technical Support for Computer Application Software and Equipment							
H6FL 04	Demonstrate Techniques and Skills							
H6FM 04	Diagnose Faults, Repair and Maintain Equipment							
H6FN 04	Provide Technical Advice and Guidance							
H6FP 04	Prepare New Methods, Resources and Equipment for Learning Activities							
H6FR 04	Improve the Quality and Reliability of Activities							
H6FS 04	Carry out Risk Assessments	X	X			X	X	X
H6FT 04	Write Reports for Activities	X	X			X	X	X
H6FV 04	Amplifying and Analysing DNA or RNA Samples using PCR or qPCR	X						
H6FW 04	Analysing Samples using Light Microscopy	X				X		
H6FX 04	Maintaining Cell Lines	X						
H6FY 04	Analysis of DNA using Gel Electrophoresis	X						
H6G0 04	Plan and Collect Samples for Testing							

Code	National Occupational Standard	Laboratory Skills for Science Industries (H91V 34)	Fundamental Chemistry: Theory and Laboratory Skills (H92X 34)	Mathematics for Science 1 (H8XP 33)	Statistics for Science 1 (H8XT 33)	Cell Biology: Theory and Laboratory Skills (J2RE 34)	Physics for Life Sciences (J5RT 34)	Biochemistry: Theory and Laboratory Skills (H922 34)
H6G1 04	Carry out Investigation	X	X			X	X	X
H6G2 04	Analysis of Samples using High Performance Liquid Chromatography	X	X					
H6G3 04	Analysis of Samples using Spectroscopy	X	X					
H6G4 04	Analysis of Samples using Gas Chromatography	X	X					
H6G5 04	Applying Basic Statistics							
H6G6 04	Develop and Provide Training							
H6G7 04	Culturing or Fermenting Cells							

5.3 Mapping of Core Skills development opportunities across the qualification(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
H91V 34	Laboratory Skills for Science Industries	O	O	S	E	O	S	E	O	S	O	O
H91W 34	Applied Sciences: Graded Unit 1	S			S		S	E	E	E		
H92X 34	Fundamental Chemistry: Theory and Laboratory Skills	O		E	O	O	S	O	O	S	O	O
H8XP 33	Mathematics for Science 1			E				E	O	O		
H8XT 33	Statistics for Science 1			O	E	O	O		O	O		
J2RE 34	Cell Biology: Theory and Laboratory Skills	O		S	O	O	S	E	O	O	O	O
J5RT 34*	Physics for Life Sciences	O		E	O	O	S	E	O	S	O	O
H922 34	Biochemistry: Theory and Laboratory Skills	O		S	O	O	S	O	O	S	O	O
H92W 33	Fundamental Chemistry: An Introduction	O		E	O	O	S	E		S	O	O
H923 33	Biology: An Introduction	O		S	O	O	S	O	O	O	O	O
H93D 33	Physics 1	O		E	O	O	S	E	O	S	O	O
H92Y 34	Inorganic Chemistry: Theory and Laboratory Skills	O			O	O	S	O	O	S	O	O
H933 34	Organic Chemistry: Theory and Laboratory Skills	O		O	O	O	S	O	O	S	O	O
H936 34	Physical Chemistry: Theory and Laboratory Skills	O		E	O	O	S	O	O	S	O	O
H92G 34	Microbiology: Theory and Laboratory Skills	O		S	O	O	S	O	O	S	O	O

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
J2RF 34	DNA and Genetics	O		S	O	O	S	O	O	O	O	O
J4RA 34*	Ecology and Ecosystems						S	E	S	S	S	
D75X 34	Information Technology: Applications Software 1					E	E	O	O	O		
H920 34	Animal and Plant Cell Culture: An Introduction	O		O		O	S	O	O	S	O	O
H91T 34	Applied Biochemical Techniques	S	S	S	S	O	S	O	O	S	S	S
J4RC 34*	Environmental Awareness	O	O			O	O	O	O	O		
J5RV 34*	Physics 2	O		E	O	O	S	E	O	S	O	O
H93G 34	Physics Principles: Heat and Thermodynamics	O		E	O	O	S	O	O	S	O	O
H93H 34	Physics Principles: Mechanics	O		E	O	O	O	E	O	O		
H93L 34	Electricity and Magnetism	O		E	O	O	S	E	O	O	O	O
DN36 34	Earth Science	S	S			S	S	O	O	O	S	S
DN38 34	Sustainable Development	S	S			S	S	O	O	O	S	S
H92K 34	Science Industry: Key Issues	O	O			O	O	E	O	O	O	O
H926 34	Biotechnology: An Introduction	O		O	O	O	S	O	O	S	O	O
DF82 34	Quality and Health & Safety Systems in Science Industries	O	O			O	O	O	O		O	O
J5R2 35*	Instrumental Techniques 1	O		S	O	O	S	E	E	E	O	O
H937 35	Spectroscopic and Analytical Techniques	O		O	S	O	S	O	O	S	O	O
H921 35	Animal Biology	O		S	O	O	S	O	O	S	O	O

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
H92H 35	Plant Biology	O		S	O	O	S	O	O	S	O	O
H93J 35	Physics: Light and Optics	O		E	O	O	S	E	O	S	O	O
H93M 35	Electronics	O		E	O	O	S	E	O	S	O	O
J676 35*	Relativity and Quantum Mechanics	O		E	O	S	S	E	O	S		
H934 35	Organic Stereochemistry: Theory and Laboratory Skills	O		O	O	O	S	O	O	S	O	O
H92C 35	Human Body Structure and Function	O		S	O	O	S	O	O	S	O	O
DT4X 35	Environmental Sampling and Analysis	O		O	O	O	O	O	O	O	O	O
H92V 35	Environmental Chemistry: Theory and Laboratory Skills	O		S	O	O	S	O	O	S	O	O
H8XR 34	Mathematics for Science 2			E	S			E	S	S		
H8XV 34	Statistics for Science 2			E	S	S	S	S	S	S		
DE3R 34	Personal Development Planning	O	O			O	O	O	O	O		
D77H 34	Employment Experience 2	O	O			O	O	O	O	O	E	E
H92R 35	Chemistry: Laboratory Practical Skills	O		O	E	O	S	E	O	S	O	O
H92J 35	Protein Structure and Function	O		S	O	O	S	S	O	O	O	O
H939 35	Transition Metal Chemistry: Theory and Laboratory Skills	O		S	O	O	S	O	O	S	O	O
H938 35	Thermodynamics and Kinetics: Theory and Laboratory Skills	O		E	O	O	S	O	O	S	O	O
H92M 35	Applications of Transition Metal Compounds			S	O		S	O	O	S		
H92T 35	Electrochemistry	O	O	O	O	O	O	O	O	O	O	O

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
H92N 35	Aromatic Chemistry: Theory and Laboratory Skills	O		O	O	O	S	O	O	S	O	O
H92P 35	Base-Catalysed and Organometallic Chemistry: Theory and Laboratory Skills	O		O	O	O	S	O	O	S	O	O
H931 35	Instrumental Techniques 2			O	O	O	O	E	O	O		
H932 35	Main Group Inorganic Chemistry	O		S	O	O	S	O	O	S	O	O
H935 35	Phase Equilibrium and Surface Chemistry	O	O	E	E	O	O	E	O	O	O	O
H92A 35	DNA Molecular Techniques	O		S			S	O	O	S	O	O
H92E 35	Immunological Techniques	O		S			S	E	O	S	O	O
J2GM 35	Microbiological Techniques	O		S			S	E	O	S	O	O
J7XD 35	Maxwell's Equations	O		E	E	O	S	E	O	S	O	O
H925 35*	Biomedical Pathology	O	O	O	O	O		O	O	O	O	O
H928 35	Cellular Signalling	O		O	O	O		O	O	O		
H924 35	Biomedical Investigations	S	O	S	O	O		S	O	O	O	O

Key:

E = Embedded
S = Signposted
O = Opportunities

5.4 Assessment Strategy for the qualification

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	Assessment
Laboratory Skills for Science Industries	Outcome 1: Production of Control of Substances Hazardous to Health (COSHH) and risk assessments Outcome 2: Practical activities and laboratory diaries/pro formas Outcome 3: Evidence of presenting and analysing scientific information Outcome 4: Production of laboratory reports/poster/presentation
Applied Sciences: Graded Unit 1	Assessed by the use of a scientific report. The investigation brief should provide the learner with the opportunity to produce evidence that demonstrates that they have met the aims of the Group Award.
Personal Development Planning	Assessed holistically by means of a personal development portfolio.
Employment Experience 2	Assessed holistically by means of a portfolio of evidence generated at the learner's place of work. Evidence will be produced by the learner during routine tasks but will also include reflective statements of their experience and supporting witness testimony to support the learner performance.
Quality and Health & Safety Systems in Science Industries	Outcome 1: Assessment on key aspects of health and safety procedures in relation to science Outcome 2: Assignment on an industrial quality system Outcome 3: Industrial visit and associated report on quality and health and safety systems
Biotechnology: An Introduction	Outcomes 1–4: Closed-book assessment Outcome 5: Debate or presentation
Earth Science	Outcome 1: Report produced under open-book conditions Outcomes 2 and 3: Learners produce a descriptive commentary of their findings of a field trip
Sustainable Development	Outcome 1: Open-book report Outcome 2: Portfolio of evidence plus report to evaluate best practice in promoting sustainable development
Environmental Awareness	Outcomes 1–4 Can be assessed by an extended response report in which learners provide evidence that they have an understanding of specified environmental issues. The report should include a personal action plan of the connection between their own actions at work, leisure, home and environmental impacts.
Chemistry: Laboratory Practical Skills	Assessed by completion of laboratory practical activities, and completion of associated laboratory reports/pro formas.

6 Guidance on approaches to delivery and assessment

6.1 Sequencing/integration of Units

The structure of the HNC Applied Sciences Group Award allows a high degree of flexibility in the mode of delivery. The Group Award can be offered on a full-time, part-time, day-release, block-release basis, or as an evening mode of study. A distance learning delivery mode is possible provided adequate materials, tutorial support, assessment facilities and laboratory time exist. Centres should note however that assessed practical activities must take place under supervised conditions. Combination of delivery modes is also a possibility. Such combined modes of study may enable learners to complete the Group Award in a shorter time period.

Centres will define which order the Units are undertaken based on learner recruitment patterns, mode of delivery, resource implications, and logical progression dictated by topic and content.

The Group Award lends itself to a wide range of delivery mechanisms including formal teaching, case studies, group work, tutorial, laboratory/practical work, field work and demonstration/coaching opportunities. A number of Units specifically indicate some of these approaches are to be utilised in assessment therefore it is important that learners have experienced them throughout the learning process.

The inclusion of SCQF level 6 Units in chemistry, biology and physics within the new HNC Applied Sciences Group Award provides an opportunity to support learners who have limited prior knowledge of a particular science. The opportunity to undertake one of these Units should be sequenced at an early stage of delivery.

The *Laboratory Skills for Science Industries* Unit could be integrated and evidence generated from Units throughout the Group Award. It is important to note that the *Laboratory Skills for Science Industries* Unit has been designed so as to give learners the laboratory time necessary to develop essential practical skills, prior to assessment of set practical activities.

The *Applied Sciences: Graded Unit 1* should use knowledge gained from the mandatory Units of this Group Award.

6.1.1 Delivery Schedule

There are many driving forces which determine a full-time delivery programme for any Group Award including accommodation, staff availability, materials and equipment.

The following table indicates a suggested delivery programme of mandatory Units for a one year full-time delivery programme operating on a three block delivery system.

<table>
<tr><td colspan="3">Higher National Certificate in Applied Sciences</td></tr>
<tr><td colspan="3">Suggested Delivery for a full-time one year programme</td></tr>
<tr><td>Teaching Block 1</td><td>Teaching Block 2</td><td>Teaching Block 3</td></tr>
<tr><td colspan="3">Laboratory Skills for Science Industries</td></tr>
<tr><td>Mathematics for Science 1

Or

Statistics for Science 1</td><td>Cell Biology: Theory and Laboratory Skills

Or

Physics for Life Sciences

Or

Physics 2

Or

Biochemistry: Theory and Laboratory Skills</td><td>Applied Sciences: Graded Unit 1</td></tr>
<tr><td>A level 6 Unit (if required)</td><td colspan="2">Fundamental Chemistry: Theory and Laboratory Skills</td></tr>
<tr><td colspan="3">Any combination of optional Units</td></tr>
</table>

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.

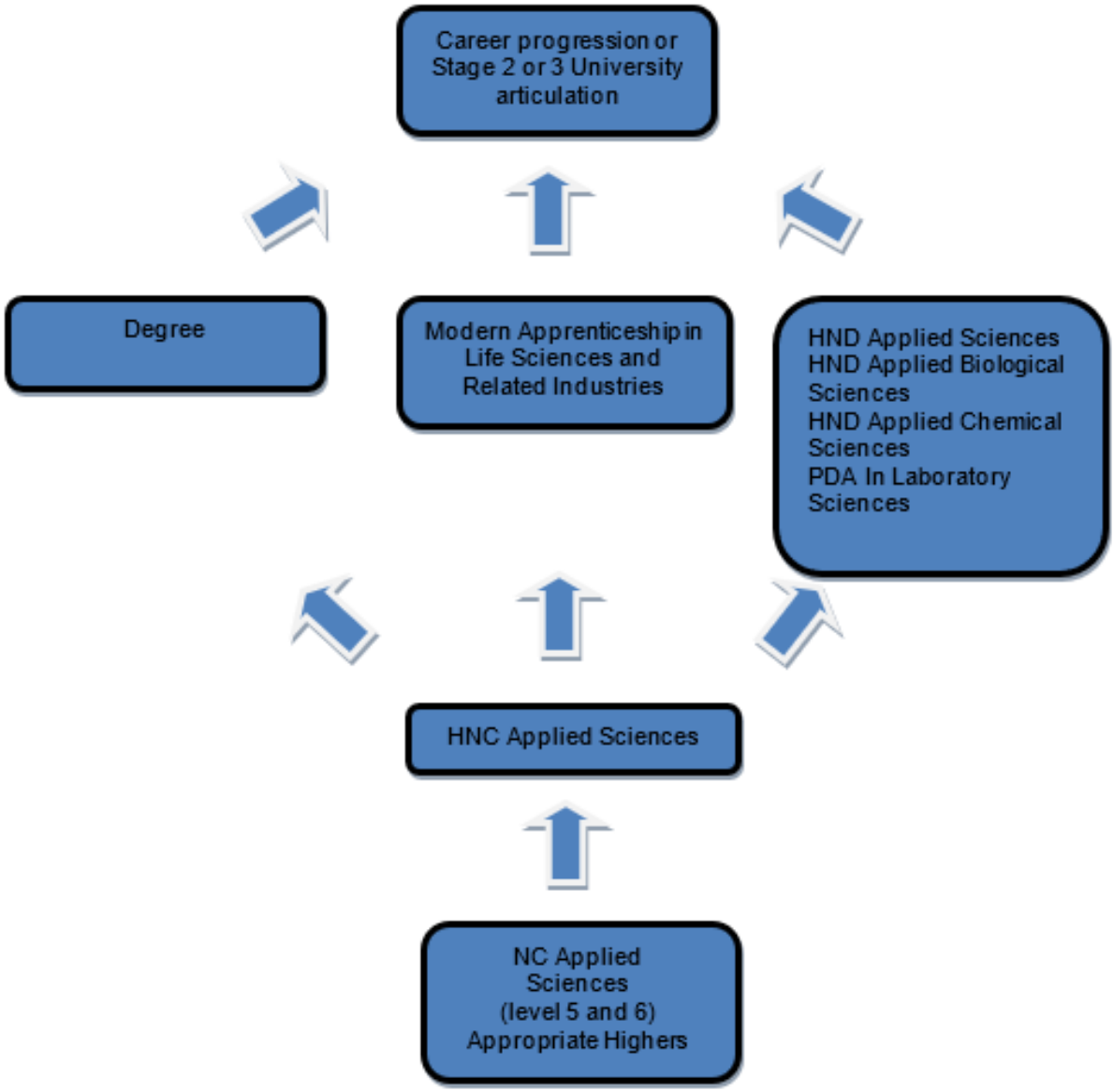
6.2.1 Articulation and/or progression

The HNC Applied Sciences Group Award is designed to articulate with the HND Applied Sciences, HND Applied Biological Sciences and HND Applied Chemical Sciences Group Awards. Learners on full-time provision should complete the HNC Applied Sciences Group Award with 15 credits to allow progression to the relevant HND Group Award.

The HNC Applied Sciences Group Award also allows progression direct to Year 2 at higher educational institutions. Learners on this route will require to complete the HNC Applied Sciences Group Award with 15 credits. Centres are advised to work in partnership with higher educational institutions to ensure that relevant options for progression are achieved.

The HNC Applied Sciences Group Award forms an integral part of the level 3 Modern Apprenticeship in Life Sciences and Related Industries, providing the knowledge and understanding and basic skills required to allow the development of vocational skills in the work place. Learners on this route will normally attend college on a day-release or block-release basis.

The diagram following illustrates potential progression routes:


Career progression or Stage 2 or 3 University articulation
Degree
Modern Apprenticeship in Life Sciences and Related Industries
HND Applied Sciences
HND Applied Biological Sciences
HND Applied Chemical Sciences
PDA In Laboratory Sciences
HNC Applied Sciences
NC Applied Sciences (level 5 and 6) Appropriate Highers

6.2.2 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. However, there may be occasions when it is not possible for learners to complete the existing Group Award, eg where they were unable to complete their studies due to ill health or difficulties with funding or employment and where the centre has progressed to offer the new Group Award and only one or two Units need to be completed. In these cases it is recommended that the following suggested credit transfer arrangements be considered.

6.2.3 Credit transfer

New Unit Code	New Unit Title	Old Unit Code	Old Unit Title	Direct Credit Transfer	Elements of Credit Transfer
H91V 34	Laboratory Skills for Science Industries	N/A		No	Pass of Unit DF82 34 credits Outcome 1 Pass of Unit DG70 34 credits Outcome 4
H91W 34	Applied Sciences: Graded Unit 1	DJ89 34	Applied Sciences: Graded Unit 1	Yes	
H92X 34	Fundamental Chemistry: Theory and Laboratory Skills	DH2K 34	Fundamental Chemistry: Theory and Practice	Yes	
H8XP 33	Mathematics for Science 1	DN8D 33	Mathematics for Science 1	No	Pass of Unit DN8D 33 credits Outcome 1
H8XT 33	Statistics for Science 1	DN8C 34	Statistics for Science 1	Yes	
H927 34	Cell Biology: Theory and Laboratory Skills	DJ1K 34	Cell Biology: Theory and Practice	No	Pass of Unit DJ1K 34 credits Outcomes 1, 3 and 4
J5RT 34*	Physics for Life Sciences	H93F 34	Physics for Life Sciences	Yes	
H922 34	Biochemistry: Theory and Laboratory Skills	DH2J 34	Biochemistry: Theory and Practice	Yes	
H92W 33	Fundamental Chemistry: An Introduction	DX29 33	Fundamental Chemistry: An Introduction	Yes	
H923 33	Biology: An Introduction	N/A			
H93D 33	Physics 1	DN33 33	Physics 1	Yes	
H92Y 34	Inorganic Chemistry: Theory and Laboratory Skills	DP2N 34	Fundamental Concepts of Inorganic Chemistry	No	Pass of Unit DP2N 34 credits Outcome 4

New Unit Code	New Unit Title	Old Unit Code	Old Unit Title	Direct Credit Transfer	Elements of Credit Transfer
H933 34	Organic Chemistry: Theory and Laboratory Skills	DP2P 34	Fundamental Concepts of Organic Chemistry	Yes	
H936 34	Physical Chemistry: Theory and Laboratory Skills	DP2R 34	Fundamental Concepts of Physical Chemistry	Yes	
H92G 34	Microbiology: Theory and Laboratory Skills	DH55 34	Microbiology: Theory and Practice	Yes	
H929 34	DNA and Genetics	DJ6Y 34 DP4P 34	DNA Structure and Function Genetics	No	Both Units, DJ6Y 34 and DP4P 34, required for credit transfer
J4RA 34*	Ecology and Ecosystems	H93A 34	Ecology and Ecosystems	Yes	
H92V 35	Environmental Chemistry: Theory and Laboratory Skills	DP4Y 34	Environmental Chemistry	Yes	
D75X 34	Information Technology: Applications Software 1	N/A			
H920 34	Animal and Plant Cell Culture: An Introduction	DH2H 34	Animal and Plant Cell Culture: An Introduction	Yes	
H91T 34	Applied Biochemical Techniques	DG6Y 34	Applied Biochemical Techniques	No	Pass of Unit DG6Y 34 credits Outcomes 2, 3 and 4
J4RC 34*	Environmental Awareness	F2G8 34	Environmental Awareness	Yes	
J5RV 34*	Physics 2	H93E 34	Physics 2	No	
H93G 34	Physics Principles: Heat and Thermodynamics	F43H 34	Physics Principles: Heat and Thermodynamics	Yes	
H93H 34	Physics Principles: Mechanics	F3XE 34	Physics Principles: Mechanics	Yes	

New Unit Code	New Unit Title	Old Unit Code	Old Unit Title	Direct Credit Transfer	Elements of Credit Transfer
H93L 34	Electricity and Magnetism	N/A			
DN36 34	Earth Science	N/A			
DN38 34	Sustainable Development	N/A			
H92K 34	Science Industry: Key Issues	DP9M 34	Science Industry: Key Issues	Yes	
H926 34	Biotechnology: An Introduction	DJ00 34	Biotechnology: An Introduction	No	
DF82 34	Quality and Health & Safety Systems in Science Industries	N/A			
J5R2 35	Instrumental Techniques 1	H930 35	Instrumental Techniques 1	Yes	
H937 35	Spectroscopic and Analytical Techniques	FV6W 35	Spectroscopic and Analytical Techniques: Theory and Practice	Yes	
H921 35	Animal Biology	DP4L 34	Animal Biology	Yes	
H92H 35	Plant Biology	DP4M 34	Plant Biology	Yes	
H93J 35	Physics: Light and Optics	N/A			
H93M 35	Electronics	N/A			
J676 35*	Relativity and Quantum Mechanics	N/A			
H934 35	Organic Stereochemistry: Theory and Laboratory Skills	DX2H 35	Organic Stereochemistry	No	Pass of Unit DX2H 35 credits Outcome 1 and 2
H92C 35	Human Body Structure and Function	DG71 35	Human Body Structure and Function	Yes	

New Unit Code	New Unit Title	Old Unit Code	Old Unit Title	Direct Credit Transfer	Elements of Credit Transfer
DT4X 35	Environmental Sampling and Analysis	N/A			
H8XR 34	Mathematics for Science 2	DV9V 34	Mathematics for Science 2	No	Pass of Unit DV9V 34 credits Outcome 1
H8XV 34	Statistics for Science 2	DV08 35	Statistics for Science 2	Yes	
DE3R 34	Personal Development Planning	N/A			
D77H 34	Employment Experience 2	N/A			
H92R 35	Chemistry: Laboratory Practical Skills	H0PM 35	Chemistry: Laboratory Practical Skills	Yes	
H92J 35	Protein Structure and Function	DG6X 35	Protein Structure	Yes	
H939 35	Transition Metal Chemistry: Theory and Laboratory Skills	DR0E 35	Transition Metal Chemistry	Yes	
H938 35	Thermodynamics and Kinetics: Theory and Laboratory Skills	DP4N 35	Thermodynamics and Kinetics	Yes	
H92M 35	Applications of Transition Metal Compounds	DP5T 35	Applications of Transition Metal Compounds	Yes	
H92N 35	Aromatic Chemistry: Theory and Laboratory Skills	DP54 35	Aromatic Chemistry	Yes	
H92P 35	Base-Catalysed and Organometallic Chemistry: Theory and Laboratory Skills	DP5W 35	Base-Catalysed Reactions and Organometallic Reagents in Organic Synthesis	Yes	
H92T 35	Electrochemistry	DP5V 35	Electrochemistry	Yes	

New Unit Code	New Unit Title	Old Unit Code	Old Unit Title	Direct Credit Transfer	Elements of Credit Transfer
H931 35	Instrumental Techniques 2	DH2N 35	Instrumental Techniques: Theory and Practice 2	Yes	
H932 35	Main Group Inorganic Chemistry	DV9F 35	Main Group Inorganic Chemistry	Yes	
H935 35	Phase Equilibrium and Surface Chemistry	DP5X 35	Phase Equilibrium and Surface Chemistry	Yes	
H92A 35	DNA Molecular Techniques	DJ6X 35	DNA Molecular Techniques: Theory and Practice	No	
J2GM 35	Microbiological Techniques	DH2P 35	Microbiological Techniques: Theory and Practice	Yes	
H92E 35	Immunological Techniques	DH2L 35 DH2M 35	Immunological Techniques: Theory and Practice Immunotechnology: Theory and Practice	No	Both Units, DH2L 35 and DH2M 35 required for credit transfer
H925 35*	Biomedical Pathology	DN35 35	Biomedical Pathology	Yes	
H928 35	Cellular Signalling	DP4T 35	Cellular Signalling	Yes	
H924 35	Biomedical Investigations	DP4R 35	Biomedical Investigations	Yes	

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 SQA's qualifications is available at **www.sqa.org.uk/e-assessment**.

6.4 Support materials

A **list of existing ASPs** is available to view on SQA's website.

Understanding Standards documents will be produced for the following Units:

Unit code	Unit title
H91W 34	Applied Sciences: Graded Unit 1
H91V 34	Laboratory Skills for Science Industries

6.5 Resource requirements

Delivering centres will require appropriate science teaching laboratories and technical support as well as appropriate laboratory resources to support the delivery of the practical elements of the HNC Applied Sciences Group Award.

Centres will require to ensure that specific requirements in terms of documents, texts and IT resources to support the learning processes within the HNC Applied Sciences Group Award are met.

All staff delivering the HNC Applied Sciences Group Award will require to hold a qualification appropriate to the Unit(s) 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 **www.sqa.org.uk/assessmentarrangements**.

Internal and external verification

All instruments of assessment used within this qualification 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 this qualification.

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: 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)

Graded Unit: Graded Units assess learners' ability to integrate what they have learned while working towards the Units of the Group Award. Their purpose is to add value to the Group Award, making it more than the sum of its parts, and to encourage learners to retain and adapt their skills and knowledge.

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

Version Number	Description	Date
18	**Additional Optional Units:** H924 35 - Biomedical Investigations and H928 35 - Cellular Signalling added to the optional section of the framework.	28/11/24
17	**Additional Optional Unit:** H925 35 - Biomedical Pathology added to the optional section of the framework.	20/03/24
16	**Additional Optional Unit:** J7XD 35 - Maxwell's Equations added to the optional section of the framework.	31/10/23
15	Minor amendment made to the credit transfer table	26/07/22
14	**Revision of Unit:** J676 35 - Relativity and Quantum Mechanics has replaced H93K 35 - Relativity and Quantum Mechanics which finishes on 31/07/2022	19/04/22
13	Minor amendments made to section 9.1 Course content	09/02/22
12	**Update to Assessment Strategy:** Rewording of the instructions for Environmental Awareness outcomes 1-4	19/11/21
11	**Revision of Units:** J4RA 34 – Ecology and Ecosystems has replaced H93A 34 which finishes on 31/07/2022 J4RC 34 – Environmental Awareness has replaced F2G8 34 which finished on 31/07/2022	05/11/21
10	**Revision of Units:** J5RT 34 – Physics for Life Sciences has replaced H93F 34 – Physics for Life Sciences, which finishes on 01/08/2023. J5RV 34 – Physics 2 has replaced H93E 34 – Physics 2, which finishes on 01/08/2023.	20/10/21
09	**Revision of Unit:** J5R2 35 - Instrumental Techniques 1 has replaced H930 35 - Instrumental Techniques 1 which finishes on 01/08/2023.	08/09/21

Version Number	Description	Date
08	H93E 34 Physics 2 added to the mandatory section of the framework	07/07/21
07	Core Skills section 5.3 updated	17/09/20
06	Revision of Units: H927 34 Cell Biology: Theory and Laboratory Skills has been replaced by J2RE 34 Cell Biology: Theory and Laboratory Skills. H929 34 DNA and Genetics has been replaced by J2RF 34 DNA and Genetics. H927 34 and H929 34 will finish on 31/07/2022	17/09/19
05	**Revision of Unit:** H92F 35 Microbiological Techniques has been replaced by J2GM 35 Microbiological Techniques. H92F 35 will finish 31/07/2021	16/07/19
04	Additional SCQF level 8 units added to the Optional Section C of the framework.	21/12/2017
03	Section 5.3 updated with embedded Core Skill components.	01/12/2015
02	Two Units to be added to Optional Section Statistics for Science 2 (H8XV 34) and Mathematics for Science 2 (H8XR 34)	15/09/2015

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.

The HNC Applied Sciences Group Award is a vocational qualification providing the knowledge and skills required to allow for progression to further study and employment in science-based industries.

The aims of the HNC Applied Sciences Group Award are designed to:

- prepare you for an appropriate level of employment, in science areas such as research and industrial laboratories; biotechnology, biological, chemical, microbiological, pharmaceutical and environmental.
- develop a range of contemporary vocational skills relating to the use, support and development of systems appropriate to employment at technician or professional level.
- provide you with a range of skills to support learning in relevant SVQ 3 level programmes.
- provide you with an element of vocational specialisation in a variety of areas such as biotechnology, chemical, therapeutics, diagnostics, agriculture, veterinary and environmental science.
- prepare you for progression to further studies in science related disciplines.
- provide a flexible route to the Group Award, allowing access to those in employment through part-time study and full-time provision.
- provide you with an opportunity to discover which areas of science are of most interest to you by allowing you to experience each of the main branches of science.
- develop study and research skills.
- develop Core Skills such as working with others in a team environment and communication skills through the use of report writing and working in a laboratory environment.

9.1 Course Content

The HNC Applied Sciences Group Award is an SCQF level 7 qualification which contains 12 credits (96 SCQF credit points). In order to achieve the HNC Applied Sciences Group Award, you must achieve 12 credits as follows:

Section	Credits required	Notes
Mandatory section	5 credits must be achieved	
Mandatory optional section	1 credit must be achieved	A further 1 credit could be achieved from this section
Mandatory optional section	1 credit must be achieved	A further 3 credits could be achieved from this section
Optional Sections A, B, C and D	1–5 credits must be achieved, depending on the choice of Units in the mandatory optional sections	Maximum of 1 credit from Section A Maximum of 5 credits from Section B Maximum of 3 credits from Section C Maximum of 2 credits from Section D

It is recommended that all learners be given a copy of the Group Award structure from Section 2 with clarification and explanation as appropriate. You should liaise with your lecturer to ensure that you complete the necessary Units to achieve the Group Award itself but also that progression routes remain open to you.

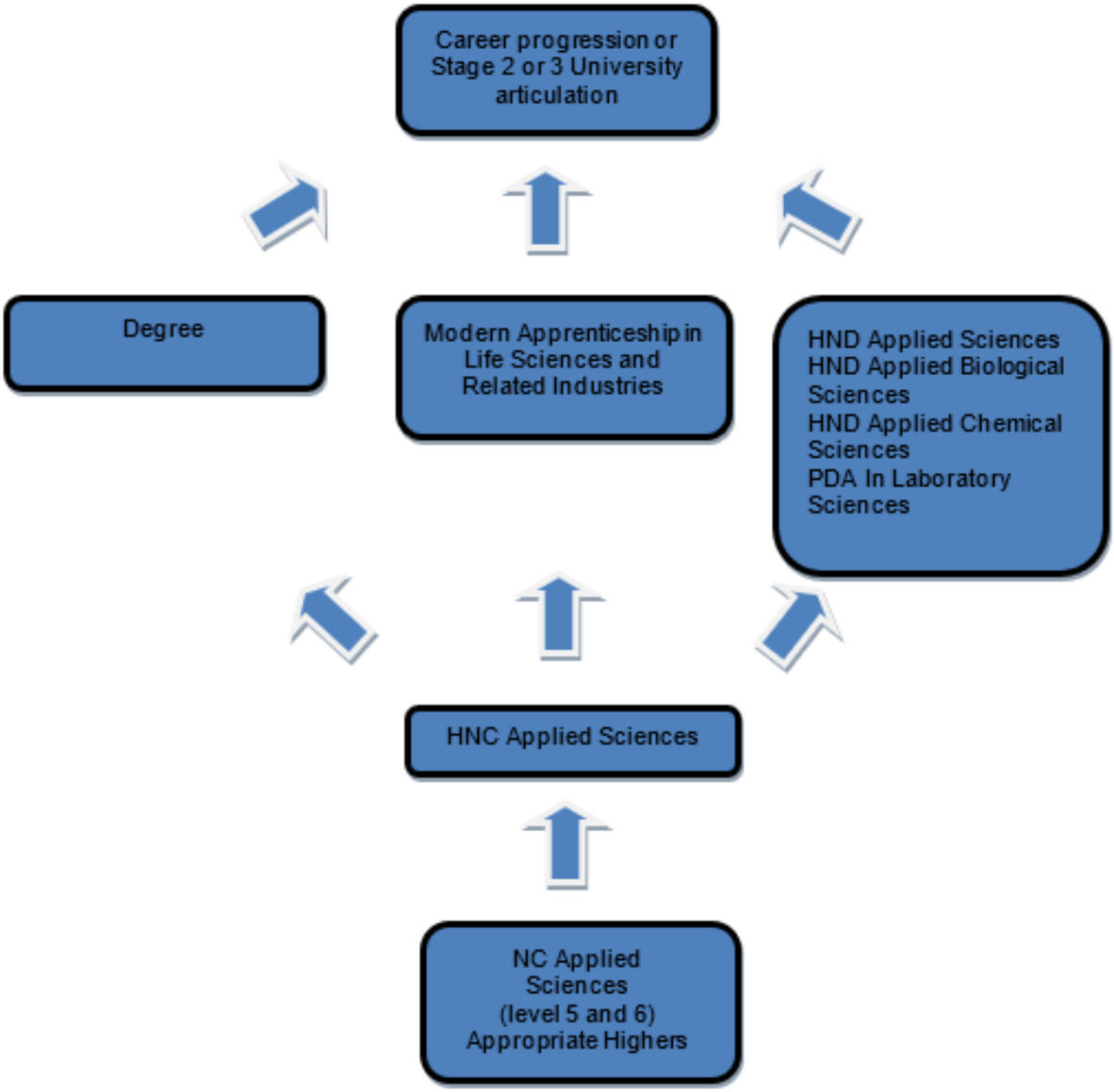
The majority of the Units have theory and practical Outcomes. To pass the theory Outcomes you will be required to pass an end of Unit test. To pass a practical Outcome you will be expected to perform a range of laboratory experiments to a required standard, and to produce a report/pro forma on the experiment.

As well as undertaking assessments for all Units, you will also be required to undertake a 1 credit Graded Unit at SCQF level 7. The *Applied Sciences: Graded Unit 1* at SCQF level 7 will take the form of an investigation report.

The purpose of the Graded Unit is to assess your ability to integrate and apply the knowledge and skills that you will have gained during your period of study. On successful completion of each Graded Unit you will be awarded a Grade of A, B or C according to the mark attained. This grading applies only to the relevant Graded Unit and not the overall HNC Applied Sciences Group Award.

It may be possible to study for the HNC Applied Sciences Group Award on a part-time basis.

Progression opportunities to and from the HNC Applied Sciences Group Award are illustrated in the diagram following:


Career progression or Stage 2 or 3 University articulation
Degree
Modern Apprenticeship in Life Sciences and Related Industries
HND Applied Sciences
HND Applied Biological Sciences
HND Applied Chemical Sciences
PDA In Laboratory Sciences
HNC Applied Sciences
NC Applied Sciences (level 5 and 6) Appropriate Highers