

Scottish Group Award Specifications

SGA in:	Technology		
Level:	Higher	Code:	G5B1 12

Summary of requirements

SGA in Technology at Higher

National Courses and Units required*

1 National Course (4 credits) at Higher from:

Product Design
Graphic Communication
Home Economics – Fashion and Textile Technology
Home Economics – Health and Food Technology
Home Economics – Lifestyle and Consumer Technology
Technological Studies

Details in specific section

plus

2 National Courses (8 credits) at Higher from above list and/or the following:

Administration	Geology
Art and Design	Human Biology
Biology	Information Systems
Biotechnology	Managing Environmental Resources
Business Management	Mathematics
Chemistry	Physics
Computing	

Details in specific section

plus

8 credits at minimum of Intermediate 2

Details in open section

Total 20 credits

Core Skills required*

The above must include or cover:

5 core skills at Intermediate 2

Details in specific section

*See Important Note on page 4.

Rules for credit contribution for specific and open sections

Important Note* Achievement above the minimum requirements

The specification shows the **minimum** requirements for this SGA. Where possible, centres may wish to encourage candidates to exceed this minimum. Candidates achieving above the minimum specification will have this achievement recorded on their Scottish Qualifications Certificate. For example the following can be achieved above the minimum requirement:

- Core Skills at levels above those specified
- more National Courses and Units at Higher instead of the credits at Intermediate 2
- National Course grades, eg grade A or B instead of grade C
- more than the required three National Courses, in which case each additional course completed counts as four credits in the open section of the specification

Hierarchies

- courses and units can be substituted by those with the same title at a higher level, eg Communication (Int 2) can be substituted by Communication (H) (See Section E)

Double counting

- courses and units with the same title at different levels cannot both contribute credits to the SGA, eg **either** Mathematics 1 (Int 2) **or** Mathematics 1 (H)
- courses at the same level in the same subject cannot both contribute credits to the SGA, eg **either** the National Course in Technological Studies at Higher **or** SCE Higher Grade Technological Studies (See Section F)
- same course with different grades cannot both contribute credits to the SGA, eg **either** Higher Graphic Communication at grade A **or** Higher Graphic Communication at grade C
- same course or unit cannot contribute credit to both the specific and open sections of an SGA

National Course awards at Grade D

National Course awards at Grade D can contribute to the SGA in the following ways:

- in place of the specified Higher Course, a grade D at Advanced Higher in the Course of the same title can contribute 4 credits to the specific section
- a grade D at Higher (or above) can contribute 4 credits to the open section.

Note - The former compensatory course awards (fallbacks) can also contribute to the SGA:

- in place of the specified Higher Course, a compensatory award for the Course of the same title taken at Advanced Higher (ie awarded at Higher) can contribute 4 credits to the specific section
- a compensatory award for a course taken at Higher (ie awarded at Intermediate 2) can contribute 4 credits to the open section.

Specific section

A

This section specifies: mandatory courses, mandatory units, mandatory combinations of courses and/or units, mandatory core skill requirements and optional courses and units.

Course/unit no	Course/unit title	Credits
C211 12	Product Design (H)	4
C116 12	Home Economics – Fashion and Textile Technology (H)	4
C033 12	Graphic Communication (H)	4
C118 12	Home Economics – Health and Food Technology (H)	4
C117 12	Home Economics – Lifestyle and Consumer Technology (H)	4
C036 12	Technological Studies (H)	4
plus two National Courses from the above list or from:		
C002 12	Administration (H)	4
C003 12	Art and Design (H)	4
C007 12	Biology (H)	4
C008 12	Biotechnology (H)	4
C010 12	Business Management (H)	4
C012 12	Chemistry (H)	4
C206 12	Computing (H)	4
C043 12	Geology (H)	4
C009 12	Human Biology (H)	4
C054 12	Information Systems (H)	4
C055 12	Managing Environmental Resources (H)	4
C100 12	Mathematics: Maths 1, 2 and 3 (H) ¹	4
C102 12	Mathematics: Maths 1, 2 and Stats (H) ¹	4
C069 12	Physics (H)	4

Total credits required: 12

¹ Candidates can choose **either** C100 12 or C102 12, not both.

** Core skills requirement

Communication at Intermediate 2
 Numeracy at Intermediate 2
 Information Technology at Intermediate 2
 Problem Solving at Intermediate 2
 Working with Others at Intermediate 2

** See Section D for core skills details.

Note: Candidates may substitute designated SCE Highers for National Courses at Higher in this section. (See Section F)

Open section

B

8 credits at minimum of Intermediate 2 are required to complete this SGA. These can be chosen from either one or both of the following sections:

- Open section (any qualification listed below)
- Specific section (units and courses not already chosen)

The 8 credits may be made up from any of the following. Each has a fixed credit value for the purposes of this SGA.

Qualifications	Credit
National Units at Intermediate 2 or above	each typically 1
National Courses at Intermediate 2 or above	each 4
Standard Grades at Credit Level contribute credits at <i>Intermediate 2</i> *	each 4
SCE Highers contribute credits at <i>Higher</i> *	each 4
Free-standing core skills units (if required to complete the core skills requirement)	each 1
Relevant SVQs at Level 2 in the following occupational areas contribute credits at <i>Intermediate 2</i> : 004 (Engineering) 005 (Manufacturing) 009 (Providing Business Services)	max 8
Relevant SVQs at Level 3 in the following occupational areas contribute credits at <i>Higher</i> : 004 (Engineering) 005 (Manufacturing) 009 (Providing Business Services)	max 8

*If achieved prior to 1994 please contact SQA Helpdesk ☎ 0141 242 2214.

Note: There are many ways in which the 8 credits at Intermediate 2 can be achieved and the following sections are provided for your information.

Open section: Qualifications which can contribute credits to this group award.
Programme advice: Guidance on possible combinations of units and courses which candidates might choose in order to gain the required credits.

Centres and candidates should agree the most appropriate way of gaining the required credits to meet each candidate's individual needs.

Rules for credit contribution for specific and open sections

Important Note* Achievement above the minimum requirements

The specification shows the **minimum** requirements for this SGA. Where possible, centres may wish to encourage candidates to exceed this minimum. Candidates achieving above the minimum specification will have this achievement recorded on their Scottish Qualifications Certificate. For example the following can be achieved above the minimum requirement:

- Core Skills at levels above those specified
- more National Courses and Units at Higher instead of the credits at Intermediate 2
- National Course grades, eg grade A or B instead of grade C
- more than the required three National Courses, in which case each additional course completed counts as four credits in the open section of the specification

Hierarchies

- courses and units can be substituted by those with the same title at a higher level, eg Communication (Int 2) can be substituted by Communication (H) (See Section E)

Double counting

- courses and units with the same title at different levels cannot both contribute credits to the SGA, eg **either** Mathematics 1 (Int 2) **or** Mathematics 1 (H)
- courses at the same level in the same subject cannot both contribute credits to the SGA, eg **either** the National Course in Technological Studies at Higher **or** SCE Higher Grade Technological Studies (See Section F)
- same course with different grades cannot both contribute credits to the SGA, eg **either** Higher Graphic Communication at grade A **or** Higher Graphic Communication at grade C
- same course or unit cannot contribute credit to both the specific and open sections of an SGA

Note: Advice on making up programmes of credit from the open section follows in Section C.

National Course awards at Grade D

National Course awards at Grade D can contribute to the SGA in the following ways:

- in place of the specified Higher Course, a grade D at Advanced Higher in the Course of the same title can contribute 4 credits to the specific section
- a grade D at Higher (or above) can contribute 4 credits to the open section.

Note - The former compensatory course awards (fallbacks) can also contribute to the SGA:

- in place of the specified Higher Course, a compensatory award for the Course of the same title taken at Advanced Higher (ie awarded at Higher) can contribute 4 credits to the specific section
- a compensatory award for a course taken at Higher (ie awarded at Intermediate 2) can contribute 4 credits to the open section.

Programme advice

C

Candidates having met the requirements of the specific section need to achieve a further 8 credits at a minimum of Intermediate 2. The general rules are defined in Section B.

A wide choice is available to meet the 8 credits. Centres should consider individual candidate needs, eg for further specialist work within the title area of the SGA or for broadening beyond the SGA title area.

Advice has been developed in the following section on possible groupings of units and courses. This might be useful in the selection of programmes to meet individual candidates' career and progression needs in technology. The groupings are not exhaustive. Centres and candidates can choose other provision from SQA's range of qualifications to build up a coherent programme.

Candidates can make up the 8 credits by selecting courses and/or units from a range of these groupings or by selecting courses and/or units from an individual grouping according to their needs.

Please note the rules on hierarchical substitution and double-counting listed in Section B when finalising individual candidate SGA programmes.

*Mandatory unit of a course. †Optional unit of a course. All other units are free-standing National Units.
[]Bracketed numbers indicate the former coding for these unrevised National Units.

Course/unit no	Course/unit title	Credits
Administration		
Course:		
C002 11	Administration (Int 2)	4
Component units of course:		
D007 11	*Administrative Support (Int 2)	1
D008 11	*Information Technology: Office Applications (Int 2)	1
D010 11	*Word Processing 2 (Int 2)	1
Art and Design		
Course:		
C003 11	Art and Design (Int 2)	4
Component units of course:		
D014 11	*Art and Design Studies (Int 2)	1
D015 11	*Design Activity (Int 2)	1
D016 11	*Expressive Activity (Int 2)	1
Biology		
Course:		
C007 11	Biology (Int 2)	4
Component units of course:		
D028 11	*Animal Physiology (Int 2)	1
D027 11	*Environmental Biology and Genetics (Int 2)	1
D026 11	*Living Cells (Int 2)	1

Course/unit no	Course/unit title	Credits
Biotechnology		
Course:		
C008 11	Biotechnolgy (Int 2)	4
Component units of course:		
DF5G 11	*Biotechnology Processes (Int 2)	1
DF5F 11	*The Biology of Microorganisms (Int 2)	1
D039 11	*Working with Microorganisms (Int 2)	1
Business Management		
Course:		
C010 11	Business Management (Int 2)	4
Component units of course:		
D050 11	*Business Decision Areas (Int 2)	2
D049 11	*Business Enterprise (Int 2)	1
Chemistry		
Course:		
C012 11	Chemistry (Int 2)	4
Component units of course:		
D068 11	*Acids, Bases and Metals (Int 2)	1
D066 11	*Building Blocks (Int 2)	1
D067 11	*Carbon Compounds (Int 2)	1
Computing		
Course:		
C206 11	Computing (Int 2)	4
Component units of course:		
DF2X11	Computer Systems (Int 2)	1
DF31 11	Artificial Intelligence (Int 2)	1
DF2Y 11	Software Development (Int 2)	1
DF30 11	Computer Networking (Int 2)	1
DF32 11	Multimedia Technology (Int 2)	1
Craft and Design		
Course:		
C211 11	Product Design (Int 2)	4
Component units of course:		
DF4V 11	Product Design: Design Analysis (Int 2)	1
DF4W 11	Product Design: Developing Design Proposals (Int 2)	1
DF4X 11	Product Design: Manufacturing Products (Int 2)	1

Course/unit no	Course/unit title	Credits
Geology		
Course:		
C043 11	Geology (Int 2)	4
Component units of course:		
D247 11	Earth Physics and Earth Movements (Int 2)	1
D8XL 11	History of the Earth (Int 2)	1
D8XK 11	Minerals and Rocks (Int 2)	1
Graphic Communication		
Course:		
C033 11	Graphic Communication (Int 2)	4
Component units of course:		
D173 11	*Computer Graphics (Int 2)	1
D171 11	*Technical Graphics 1 (Int 2)	1
D172 11	*Technical Graphics 2 (Int 2)	1
Home Economics		
Course:		
C118 11	Home Economics – Health and Food Technology (Int 2)	4
Component units of course:		
D269 11	Consumer Studies (Int 2)	1
D268 11	Management of Practical Activities (Int 2)	1
D270 11	Product Development (Int 2)	1
Course:		
C116 11	Home Economics – Fashion and Textile Technology (Int 2)	4
Component units of course:		
D494 11	Consumer Studies (Int 2)	1
D493 11	Management of Practical Activities (Int 2)	1
D495 11	Product Development (Int 2)	1
Course:		
C117 11	Home Economics – Lifestyle and Consumer Technology (Int 2)	4
Component units of course:		
D501 11	Consumer Studies (Int 2)	1
D500 11	Management of Practical Activities (Int 2)	1
D502 11	Product Development (Int 2)	1

Course/unit no	Course/unit title	Credits
Hospitality – Practical Cookery		
Course:		
C201 11	Hospitality – Practical Cookery (Int 2)	4
Component units of course:		
D286 11	Foods of the World (Int 2)	1
D262 11	Food Preparation for Healthy Eating (Int 2)	1
D9NM 11	Practical cookery Skills for the Hospitality Industry	1
Information Systems		
Course:		
C054 11	Information Systems (Int 2)	4
Component units of course:		
D094 11	*Computer Application Software (Int 2)	1
D299 11	*Database Systems (Int 2)	1
D300 11	†Applications of IT in Society (Int 2)	1
D301 11	†Multimedia (Int 2)	1
D096 11	†The Internet (Int 2)	1
Physics		
Course:		
C069 11	Physics (Int 2)	4
Component units of course:		
D380 11	Electricity and Electronics (Int 2)	1
D379 11	Mechanics and Heat (Int 2)	1
D382 11	Radioactivity (Int 2)	0.5
D381 11	Waves and Optics (Int 2)	0.5
Practical Craft Skills		
Course:		
C034 11	Engineering Craft Skills (Int 2)	4
Component units of course:		
D178 11	Bench Skills: Metal (Int 2)	1
D180 11	Fabrication and Welding (Int 2)	1
D179 11	Machine Processes: Metal (Int 2)	1
D181 11	Practical Electronics (Int 2)	1
Course:		
C035 11	Woodworking Skills (Int 2)	4
Component units of course:		
D182 11	Bench Skills 1 – Wood Flat-Frame Construction (Int 2)	1
D183 11	Bench Skills 2 – Wood Carcass Construction (Int 2)	1
D184 11	Machining and Finishing – Wood (Int 2)	1

Course/unit no	Course/unit title	Credits
Managing Environmental Resources		
Course:		
C055 11	Managing Environmental Resources (Int 2)	4
Component units of course:		
D310 11	Ecosystems (Int 2)	1
D314 11	Local Environment (Int 2)	1
D312 11	Natural Resource Use (Int 2)	1
Marketing and Enterprise		
Free-standing National Units:		
D0VV 12	Considerations for Self Employment (H) [6120425]	1
D36N 11	Enterprise Activity (Int 2))	1
D0XR 12	Image, Branding and Packaging (H) [6260016]	1
D0XT 11	Marketing Research Principles (Int 2) [6260036]	1
D0XP 11	Marketing: Basic Principles (Int 2) [6260006]	1
D0VW 12	Researching a Business Opportunity (H) [6120425]	1
Mathematics		
Course:		
C100 11	Mathematics: Maths 1, 2 and 3 (Int 2)	4
C101 11	Mathematics: Maths 1, 2 and Applications (Int 2)	4
Component units of course:		
D324 11	Applications of Mathematics (Int 2)	1
D321 11	Mathematics 1 (Int 2)	1
D322 11	Mathematics 2 (Int 2)	1
D323 11	Mathematics 3 (Int 2)	1
Free-standing National Units:		
D11V 11	Core Mathematics 4 (Int 2) [7180331]	1
D11W 11	Mathematics: Analysis/Algebra 1 (Int 2) [7180401]	1
D0N0 11	Mathematics: Craft Technology 1 (Int 2) [91045]	0.5
D0N1 11	Mathematics: Craft Technology 2 (Int 2) [91046]	0.5
Technological Studies		
Course:		
C036 11	Technological Studies (Int 2)	4
Component units of course:		
D186 11	Applied Electronics (Int 2)	1
D185 11	Energy (Int 2)	0.5
D188 11	Mechanical Systems (Int 2)	1
D187 11	Systems and Control (Int 2)	0.5

Course/unit no	Course/unit title	Credits
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Core Skills

Free-standing National Units:

D01B 11	Communication (Int 2)	1
D01C 11	Numeracy (Int 2)	1
D01D 11	Information Technology (Int 2)	1
D01E 11	Problem Solving (Int 2)	1
D01F 11	Working with Others (Int 2)	1

Candidates who have not achieved these core skills in other ways must select the required core skills units. See Section D for further information.

One or more core skills in this SGA may be automatically certificated through courses and units in the specific section. Where this is the case, the corresponding core skill unit in the open section cannot be counted towards the SGA.

Core skills

D

To achieve this SGA, all candidates **must achieve** the following core skills:

Core skill	Level
Communication	Intermediate 2
Numeracy	Intermediate 2
Information Technology	Intermediate 2
Problem Solving	Intermediate 2
Working with Others	Intermediate 2

Candidates can achieve core skills:

- through Standard Grades or other units which give automatic certification of core skills, eg a candidate who has completed Standard Grade English at Credit level is given automatic certification of Communication at Intermediate 2
- by selecting from the group award units and courses which give automatic certification of core skills, eg the Higher course in Administration gives automatic certification of Information Technology at Intermediate 2, and Problem Solving and Working with Others at Higher
- by selecting dedicated core skills units in the open section of the SGA

Candidates' current level of achievement in core skills is shown on the Scottish Qualifications Certificate in the form of a profile. This shows achievement against each of the core skills *components*. Where a core skill has more than one component, the candidate needs to achieve each component at the level specified for the SGA. For example, if an SGA requires Communication at Intermediate 2, a candidate whose profile shows Written Communication at Intermediate 2 and Oral Communication at Intermediate 1 would not meet the requirement and would have to improve in Oral Communication.

Details of all courses which give automatic certification of core skills is published in the *Catalogue of Core Skills in National Qualifications* (SQA, 2001/2002).

Hierarchical sequences

E

The SQA numbering system for qualifications consists of a 4 + 2 reference code.

The qualifications in a hierarchical sequence have the same title and are available at more than one level. They are identified by their reference code having the same first four digits, eg, D36H in the example below. The last two digits are unique to each level of qualification, eg 12 equates to Higher, 11 equates to Intermediate 2.

Units

The following is an example of a hierarchical sequence of units:

D36H 10	Work Experience (Int 1)
D36H 11	Work Experience (Int 2)
D36H 12	Work Experience (H)

Where units which are part of hierarchical sequences are specified, candidates who achieve a unit at a higher level than the one specified can use the upper level unit to count as credit towards the group award. For example, Work Experience (H) can be counted instead of Work Experience (Int 2).

Candidates can only use one of these units to count as credit towards the group award.

In the case of unrevised National Certificate Modules, ie units which retain their original number, there are hierarchies where the title is the same and the number is different. Details of these exceptions will be published in a separate document. The pattern for these hierarchies is the same as that previously established for GSVQs.

There are also some hierarchies where the titles and numbers of the units at different levels are different. In this specification, if there are two units at different levels with heavily overlapping content, only one of these units should be used to count as credit towards the group award. Details of these exceptions will be published in a separate document.

Courses

The following is an example of a hierarchical sequence of courses:

C211 11	Product Design (Int 2)
C211 12	Product Design (H)
C211 13	Product Design (AH)

In the SGA specification, where courses which belong to hierarchical sequences are specified, candidates who achieve a course at a higher level than the one specified can use the upper level course to count as credit towards the group award. For example, Product Design (H) can be counted instead of Product Design (Int 2).

Candidates can only use one of these courses to count as credit towards the group award - a maximum of 4 credits.

SCE Highers

F

Designated SCE Highers can contribute 4 credits each to the SGA in place of National Courses in the *specific section*.

The designated SCE Highers and their corresponding National Courses, either of which can contribute to this SGA, are as follows:

SCE Higher Grade*

National Course

Art and Design	Art and Design (H)
Biology	Biology (H)
Business Management	Business Management (H)
Chemistry	Chemistry (H)
Computing Studies	Computing Studies (H)
Craft and Design	Craft and Design (H)
Graphic Communication	Graphic Communication (H)
Home Economics	Home Economics – Health and Food Technology (H)
Mathematics	Mathematics (H)
Management and Information Studies	Business Management (H)
Physics	Physics (H)
Technological Studies	Technological Studies (H)

* SCE Highers do not give automatic certification of core skills. Further information will be published about this in due course.

Note: Any SCE Higher can contribute 4 credits to the *open section*.

Relevant Scottish Vocational Qualifications (SVQs) from occupational areas 002 (Extracting) 004 (Engineering), 005 (Manufacturing) and 009 (Providing Business Services) can each contribute up to eight credits to the open section of the SGA.

SVQs at Level 3 contribute credits at Higher.

SVQs at Level 2 contribute credits at Intermediate 2.

The following are **examples** of relevant SVQs.

Code no	Relevant SVQs	Level
002 Extracting		
G5Y2 22	Well Services: Tubing Operations	2
G5Y4 22	Well Services: Electric Logging (Open Hole Services)	2
G5Y3 23	Well Services: Electric Logging (Cased Hole Services)	3
G5Y5 23	Well Services: Electric Logging (Open Hole Services)	3
004 Engineering		
G3XP 23	Electrical and Electronics Servicing	3
G36L 22	Electrical and Electronics Servicing	2
005 Manufacturing		
G5SS 23	Food and Drink Manufacturing Operations	3
G5SP 22	Food and Drink Manufacturing Operations	2
G607 23	Manufacturing Textiles	3
G388 22	Manufacturing Textiles	2
G5VN 23	Meat and Poultry Processing (Technical)	3
G37T 22	Paper Manufacturing	2
G38X 22	Process Manufacture: Chemicals	2
G3YX 23	Process Manufacture: Chemicals	3
G38P 22	Process Operations: Chemical and Pharmaceutical	2
G3YP 23	Process Operations: Chemical and Pharmaceutical	3
009 Providing Business Services		
G5W6 23	Administration	3
G5W5 22	Administration	2
G5F0 22	Using IT	2

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