Arrangements for:

NC Computer Games Development

at SCQF level 5

Group Award Code: GC8R 45

Validation date: May 2011

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Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of National Qualification Group Awards.

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
8	**Revision of Unit:** Computer Games: Design (F915 11) has been revised by Computer Games: Design (HX9V 45) and will finish on 31/07/2020 **Revision of Unit:** Computer Games: Media Assets (F916 11) has been revised by Computer Games: Media Assets (HX9W 45) and will finish on 31/07/2020 **Revision of Unit:** Computer Games: Development (F917 11) has been revised by Computer Games: Development (HX9X 45) and will finish on 31/07/2020 **Revision of Unit:** Gameplay (FN8P 11) has been revised by Gameplay (HY2F 45) and will finish on 31/07/2020.	May 2018
7	**Revision of Unit:** Digital Media: Audio Editing (F1KT 11) has been revised by Digital Media: Audio (HW4W 45) and will finish on 31/07/2020. **Revision of Unit:** Digital Media: Still Images Editing (F1KW 11) has been revised by Digital Media: Still Images (HW4X 45) and will finish on 31/07/2020. **Revision of Unit:** Digital Media: Video Editing (F1KV 11) has been revised by Digital Media: Moving Images (HW4Y 45) and will finish on 31/07/2020.	December 2017
6	H23W 75 Literacy has been added as an alternative to F3GB 11 Communication. H225 75 Numeracy has been added as an alternative to F3GF 11 Numeracy.	February 2016
5	H60C 45 Computing Academic Skills and H6S9 45 Computing: Applications Development added to GC8R 45 NC Computer Games Development as optional units.	June 2015
4	Communication (F3GB 11) and Numeracy(F3GF 11) added as optional Units to the framework	March 2015
3	**Revision of Unit**: D321 11 Mathematics 1 *has been* revised by H22F 75 Mathematics: Expressions and Formulae *and will finish on 31/07/2016.* *D322 11 Mathematics 2 has been revised by H22J 75 Mathematics: Applications and will finish on 31/07/2016.* *D323 11 Mathematics 3 has been revised by Mathematics: Relationships and will finish on 31/07/2016.*	May 2014
2	Art and Design: Line and Tone Techniques (F5CB 12) added as an optional Unit to the framework	April 2013

Contents

1 Introduction

This is the Arrangements Document for the new National Certificate in Computer Games Development at SCQF level 5, which was validated in May 2011. This document includes: background information on the development of the Group Award, its aims, guidance on access, details of the Group Award structure, and guidance on delivery. The National Certificate in Computer Games Development at SCQF level 5 has been developed under the design principles for National Certificates.

As an introductory level programme, the National Certificate in Computer Games Development at SCQF level 5 is not expected to produce employment ready candidates on its completion, however the range of specific and transferrable skills covered in the framework will improve future job prospects. The course can provide an articulation route to further study. The National Certificate in Computer Games Development at SCQF level 5 incorporates the National Progression Award in Computer Games Development at SCQF level 5. The Group Award will encourage and engage candidates by utilising a hands-on, practical approach to learning the skills for this sector. The skill sets include interpersonal skills, team working and project based activities, which are enhanced by the practical activities included in the programme. The award provides a broad range of content allowing candidates to choose a specialism within which they might progress.

The main knowledge and skills included in the Group Award have been mapped against the relevant elements of the National Occupational Standards (NOS) produced by Skillset, the Sector Skills Council (see Appendix 1).

2 Rationale for the development of the Group Award

Computer games are being used increasingly for leisure, education, and work-based training with players interacting via personal computers, consoles, PDAs, mobile devices and web browsers. Computer gaming has been a growing industry for the last few years, with Scotland being one of the global leaders. In Scotland there are more than 50 such companies, mostly based in Dundee, Edinburgh and Glasgow. These companies rely on a range of creative skills such as in art, design, animation, audio and programming. Employers increasingly expect candidates to also have critical thinking and problem solving abilities, to be good communicators and able to work within a team, as these skills are essential in a modern business environment.

Skillset identified a number of areas for skills development in relation to the design of computer games courses. This NC contributes to addressing gaming industry skills shortages in the areas of lead roles, games design, management and production.

2.1 Current market

One of the fastest growth areas for computer games is via new media including mobile phones, social web spaces and tablet/phone applications. These new technologies are used by businesses, educators, marketers, and

games developers. Games usually incorporate other applications such as for music, video, e-chat and photos. This course offers an introduction to games applications.

As newer technologies, such as 3G phones and home wireless broadband become standard, there is a need to continue to be open to the kinds of games that can be created and the technologies that can be used to create them.

Mobile applications development has allowed a return to individual programmers creating content without the huge time and budget requirements of the mainstream gaming industry. The National Certificate in Computer Games Development at SCQF level 5 provides the skills required to take advantage of these opportunities.

The pace of growth in the computing industry combined with the increasing interest in entertainment technology offers a particular opportunity to capitalise on the growing demand for this set of skills. The rapid development of touch screen interfaces and the market saturation of touch sensitive hardware will require the development of new software technologies to maximise the impact of new devices.

There has been a radical change in the demographics of games players, with the average age of a gamer today being 29. The core demographic is aged 18-35, although there are many older, and a third of all computer games players are women. The increase in popularity of brain training and fitness and lifestyle games show the change in the market.

2.2 Market Research

Market research was undertaken to gauge support for an NC in Computer Games Development at SCQF level 5 from the Further Education sector, other educational organisations and the industry across Scotland, and to obtain initial feedback on the use of existing Units that could be contextualised for such a course. Extensive research had already established the need for National Progression Awards in Computer Games Development at SCQF levels 4, 5 and 6, with considerable interest from schools and colleges. Research for these awards informed development of this NC, as did industry consultation and feedback.

Market research included three targeted surveys, with over 90 responses from the industry and education sectors, who were surveyed separately.

Of computing teachers (in schools, FE and HE) 96.3% of responses from indicated that they would be interested in delivering this award.

3 Aims of the Group Award

The main aim of the National Certificate in Computer Games Development at SCQF level 5 is to provide a vehicle for candidates to develop basic knowledge and skills relating to computer games development. It is primarily intended for full time candidates, differentiating it from the National Progression Awards. The ethos of the Group Award is to allow centres to offer clusters of Units which will introduce candidates to the core topics of design, development and animation, as well as enabling candidates to choose the specialism within which to progress.

The aims outlined below reflect the intention to provide an entry level course which facilitates access to further study. This Group Award will be an entry point for some candidates who progress from school to Higher National and then degree studies.

3.1 Principal aims of the Group Award

1 Provide candidates with the skills and knowledge of the computer games sector as well as providing an understanding of the design and development process
2 Develop an understanding of the games industry
3 Develop candidates' design skills
4 Develop candidates' programming skills
5 Provide the opportunity to determine vocational areas for further study.
6 Enable progression within the SCQF framework.

3.2 General aims of the Group Award

1 Develop candidates' creativity
2 Develop candidates' creative strategies
3 Reflect modern and emerging technologies which require new skill sets.
4 Prepare candidates for further studies within the games development sector.
5 Equip candidates with a wide range of skills relevant but not exclusive to the computer games industry.
6 Develop core skills in Working with Others, Problem Solving and Communication.

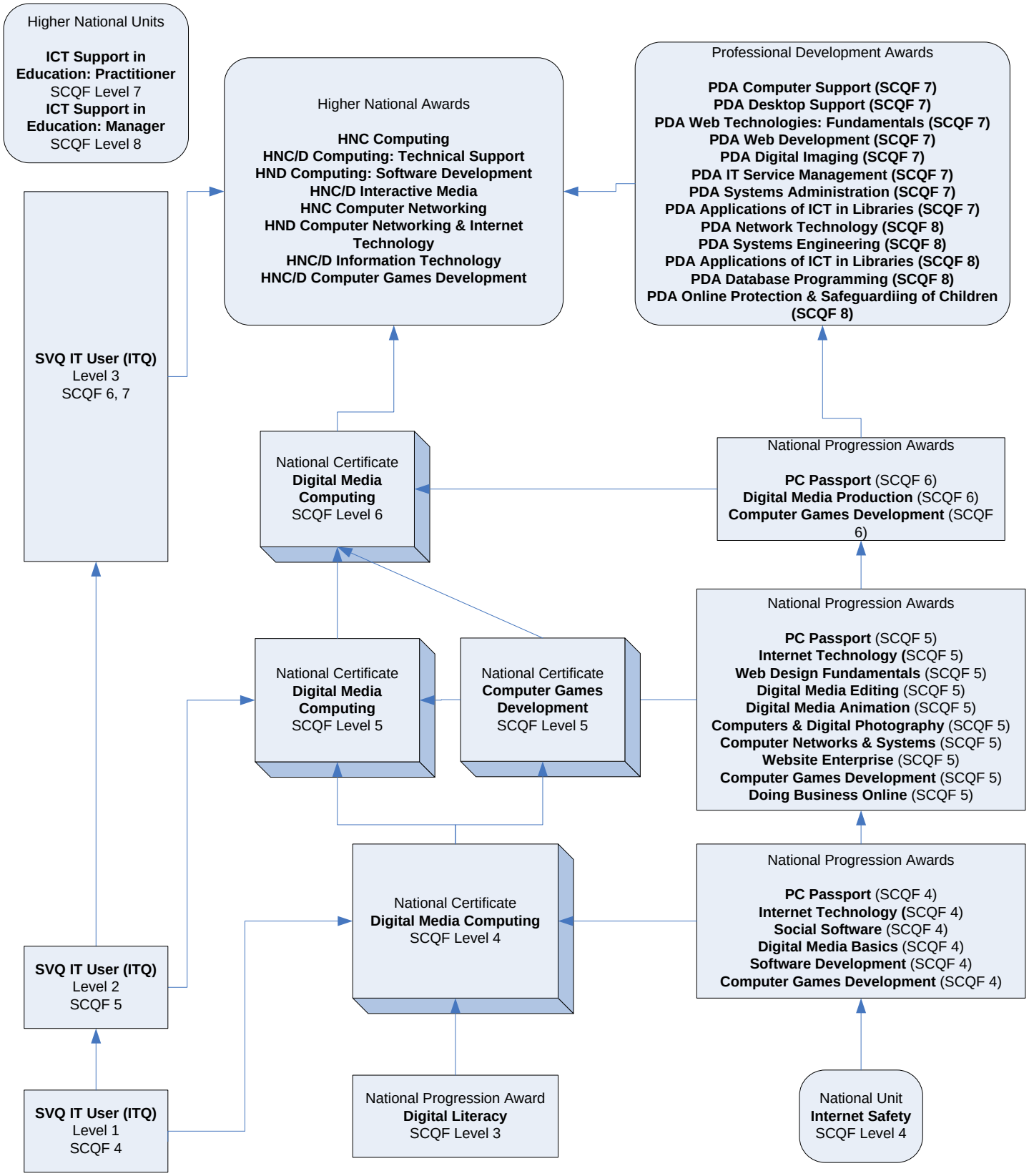
3.3 Target groups

The National Certificate in Computer Games Development at SCQF level 5 is suitable for a range of candidates including:

- adults with no formal qualifications returning to education
- candidates of school leaving age who have completed their studies.

3.4 Progression

This Group Award is within a large suite of Computing-related qualifications, and including qualifications at Higher National level. These can be seen from the diagram below.



4 Access to Group Award

Entry is at the discretion of the presenting centre. However, it would be beneficial if candidates possessed

- Information Technology (F3GC 10)
- Computer Graphics (D173 10)
- Standard Grade Mathematics at General level (SCQF level 4)
- Intermediate 1 Mathematics (SCQF level 4)

It would be beneficial for prospective candidates to have a passion for computer games. Throughout the award, there will be opportunities for candidates to develop Core Skills to SCQF level 5.

A National Certificate in Digital Media Computing at SCQF level 4 would be an ideal precursor to this Group Award, as would the NPA in Computer Games Development at SCQF level 4.

5 Group Award structure

The National Certificate in Computer Games Development at SCQF level 5 consists of 12 credits (72 SCQF points). There are 6 mandatory credits (36 SCQF points) as set out in Table 1 below. Six credits should be selected from the option group (Table 2)

Mandatory Units (6 credits)

Unit title	Code	Credit Value	SCQF level	SCQF credit points
*Computer Games: Design	HX9V 45	1	5	6
*Computer Games: Media Assets	HX9W 45	1	5	6
*Computer Games: Development	HX9X 45	1	5	6
Media Production	DF16 11	1	5	6
*Gameplay	HY2F 45	1	5	6
Art and Design: Animation Skills	F5BT 11	1	5	6

*Refer to history of changes for revision details.

Optional Units (a further 6 credits required)

Unit title	Code	Credit Value	SCQF level	SCQF credit points
Art and Design: Drawing Skills — Figure/Life Drawing 1	F9X2 11	1	5	6
(**or** Drawing Skills — Figure/Life Drawing 1)	D948 11	1	5	6
Computing: Animation Fundamentals	F1KB 11	1	5	6
Introduction to Computer Animation	D6RC 11	1	5	6
3D Modelling and Animation: An introduction	FN91 11	1	5	6
Narrative Design and Development	FN8T 11	1	5	6

Sound Design in Visual Media Applications: An Introduction	FN92 11	1	5	6
Creativity in Digital Domains	FN8W 11	1	5	6
Character Creation	FN8Y 11	1	5	6
Mobile Game Development	FN8X 11	1	5	6
Games Programming	FN8R 11	1	5	6
Artificial Intelligence for Games	FN8V 11	1	5	6
Mathematics for Interactive Computing	FN84 11	1	5	6
Games Interface Design	FN90 11	1	5	6
Computing: Programming in a High-Level Language — Fundamentals	F1K0 10	1	4	6
Computer Programming (Project) — Scripting Language	D6RB 11	1	5	6
Computing: Academic Skills	H60C 45	1	5	6
Computing: Applications Development	H6S9 45	1	5	6
Enterprise Activity	D36N 11	1	5	6
*Digital Media: Still Images	HW4X 45	1	5	6
*Digital Media: Moving Images	HW4Y 45	1	5	6
*Digital Media: Audio	HW4W 45	1	5	6
*Mathematics: Expressions and Formulae	H22F 75	1	5	6
*Mathematics: Applications	H22J 75	1	5	6
*Mathematics: Relationships	H22G 75	1	5	6
Computing: Digital Media Elements for Applications	F1KS 11	1	5	6
Problem Solving	F3DG 10	1	4	6
Digital Culture: Social Software	F81P 10	1	4	6
Computer Games: Digital Gaming Design	F1K4 10	1	4	6
Computer Games: Digital Games Design	F1R2 11	1	5	6
Art and Design: Line and Tone Techniques	F5CB 12	1	6	6
Communication Or Literacy	F3GB 11 H23W 75	1 1	5 5	6 6
Numeracy Or Numeracy	F3GF 11 H225 75	1 1	5 5	6 6

*Refer to history of changes for revision details.

Candidates will be awarded the NC in Computer Games Development at SCQF level 5 on successful completion of the six mandatory Units and six optional Units.

Additionally, candidates will be awarded an NPA in Computer Games Development at SCQF level 5 (G9RR 45) on successful completion of the three contributing Units available in the NC options. These are:

Computer Games: Design (F91511)
Computer Games: Media Assets (F91611)
Computer Games: Development (F91711).

5.2 Mapping of Principal and General Aims of the Award to Units

Unit Code	Unit Title	PA1	PA2	PA3	PA4	PA5	PA6	GA1	GA2	GA3	GA4	GA5	GA6
HX9V 45	Computer Games: Design	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
HX9W 45	Computer Games: Media Assets	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
HX9X 45	Computer Games: Development	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
DF16 11	Media Production		✓			✓	✓	✓	✓			✓	✓
HY2F 45	Gameplay	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FN91 11	3D Modelling and Animation: An Introduction	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
FN8T 11	Narrative Design and Development	✓		✓		✓	✓	✓	✓		✓	✓	✓
FN92 11	Sound Design in Visual Media Applications: An Introduction	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓
FN8W 11	Creativity in Digital Domains	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓
FN8Y 11	Character Creation	✓		✓		✓	✓	✓	✓		✓	✓	
FN8X 11	Mobile Game Development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
FN8R 11	Games Programming	✓			✓	✓	✓	✓	✓	✓	✓	✓	
FN8V 11	Artificial Intelligence for Games	✓	✓			✓	✓	✓	✓	✓	✓		✓
FN84 11	Mathematics for Interactive Computing				✓	✓	✓	✓	✓		✓	✓	
FN90 11	Games Interface Design	✓	✓	✓		✓	✓	✓	✓		✓		
F5BT 11	Art and Design: Animation Skills	✓		✓		✓	✓	✓	✓	✓	✓		✓
F9X2 11	Art and Design: Drawing Skills — Figure/Life Drawing 1	✓		✓		✓	✓	✓	✓	✓	✓	✓	
F1KB 11	Computing: Animation Fundamentals	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓

Unit Code	Unit Title	PA1	PA2	PA3	PA4	PA5	PA6	GA1	GA2	GA3	GA4	GA5	GA6
D6RC 11	Introduction to Computer Animation	✓		✓		✓	✓	✓	✓	✓	✓		
F1K0 10	Computing: Programming in a High-Level Language — Fundamentals				✓	✓	✓	✓	✓	✓	✓	✓	✓
D6RB 11	Computer Programming (Project) — Scripting Language	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
D36N11	Enterprise Activity	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
HW4X 45	Digital Media: Still Images	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
HW4Y 45	Digital Media: Moving Images	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
HW4W 45	Digital Media: Audio	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D321 11	Mathematics 1				✓	✓	✓				✓		
D322 11	Mathematics 2				✓	✓	✓				✓		
D323 11	Mathematics 3				✓	✓	✓				✓		
F1KS 11	Computing: Digital Media Elements for Applications	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓
F3DG 10	Problem Solving						✓	✓	✓		✓		
F81P 10	Digital Culture: Social Software					✓	✓						✓
F1K4 10	Computer Games: Digital Gaming Design	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

5.3 Mapping of Core Skills development to Units

S = signposted
E () = embedded (SCQF level)

Unit Code	Unit Title	Communication		Numeracy		ICT		Problem Solving			Working with Others
		Oral	Written	Using Graphical Info	Using Number	Accessing information	Providing /creating information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	
HX9V 45	Computer Games: Design	S	S	S	S	S		E(5)	S		S
HX9W 45	Computer Games: Media Assets	S	S	S	S	S	E(5)	E(5)	S		S
HX9X 45	Computer Games: Development	S	S		S	S	E(5)	E(5)		S	S
DF16 11	Media Production							S	S	S	S
HY2F 45	Gameplay	S	S			S	E(4)	E(4)	E(4)	E(4)	S
FN91 11	3D Modelling and Animation: An Introduction				S	S		S	S	S	
FN8T 11	Narrative Design and Development	S	S			S			S		
FN92 11	Sound Design in Visual Media Applications: An Introduction		S			S		E (5)	E (5)		
FN8W 11	Creativity in Digital Domains	S	S			S		S	S	S	
FN8Y 11	Character Creation										
FN8X 11	Mobile Game Development	S	S			S		S	S	S	S
FN8R 11	Games Programming		S		S	S		E (5)	S	S	
FN8V 11	Artificial Intelligence for Games	S	S			S		S	S	S	S
FN84 11	Mathematics for Interactive Computing				S						
FN90 11	Games Interface Design					S		S	S	S	
F1KB 11	Computing: Animation Fundamentals							S	S	S	S

Unit Code	Unit Title	Communication		Numeracy		ICT	Problem Solving			Working with Others
		Oral	Written	Using Graphical Info	Using Number		Critical Thinking	Planning and Organising	Reviewing and Evaluating	
D6RC 11	Introduction to Computer Animation					S				
F1K0 10	Computing: Programming in a High-Level Language — Fundamentals						S	S	S	S
D6RB 11	Computer Programming (Project) — Scripting Language					S				
D36N11	Enterprise Activity						E (5)	E (5)	E (5)	E (5)
HW4X 45	Digital Media: Still Images Editing	S	S			E(5)	E(5)	E(5)	E(5)	S
HW4Y 45	Digital Media: Moving Images	S	S			E(5)	E(5)	E(5)	E(5)	S
HW4W 45	Digital Media: Moving Images	S	S			E(5)	E(5)	E(5)	E(5)	
D321 11	Mathematics 1				E (5)					
D322 11	Mathematics 2			E (5)	E (5)					
D323 11	Mathematics 3				E (5)					
F1KS 11	Computing: Digital Media Elements for Applications	S	S				S	S	S	S
F3DG 10	Problem Solving						E (4)	E (4)	E (4)	
F81P 10	Digital Culture: Social Software						S	S	S	S
F1K4 10	Computer Games: Digital Gaming Design					S	S	S	S	
F9X2 11	Art and Design: Drawing Skills — Figure/Life Drawing 1	S	S				S	S	S	

5.3 Articulation and credit transfer

The Group Award provides an articulation route to the National Certificate in Digital Media Computing at SCQF Level 6.

Each centre should consider credit transfer claims and be satisfied that evidence exists for credit transfer if required by the external verifier.

6 Approaches to delivery and assessment

6.1 Content and context

The Group Award has been informed by guidance given by Sector Skills Council and industry representatives to reflect industry working standards. Emphasis has been placed on group-based project work and independent activities. Candidates must be able to access equipment and materials to provide them with opportunities to participate in activities in a learning environment similar to that of a real games studio or digital media workplace. Appropriate facilities and equipment and other resources are required to deliver this Group Award successfully.

6.2 Delivery and assessment

Delivery of this award should allow candidates to produce a portfolio of work containing designs for a working game, the assets for the working game, a thorough test plan of the game and the game itself. This is assessed through the core Units Computer Games: Design (F915 11), Computer Games: Media Assets (F917 11) and Computer Games: Development (F916 11). The other core Units Art and Design: Animation Skills (F5BT 11); Media Production (DF16 11) and Gameplay (FN8P 11) allow for a deeper understanding of the knowledge and skills required. The selection of the optional Units should provide the candidate with a wide range of complementary skills.

Although the Units can be delivered on a standalone basis, it is recommended that a holistic delivery approach is adopted. Each of the Units should provide complementary information to the knowledge and skills of the others on the framework. This approach will enable a coherent and valuable experience for candidates and enable them to understand the links between different subject areas. There are opportunities to integrate learning and assessment across the NC framework.

The order in which Units within the Group Award are delivered is at the discretion of centres. The delivery sequence given below is offered for guidance only. Where the Group Award is delivered on a part-time basis, subjects recommended for first semester delivery within the full-time model could be delivered in the first academic session of the part-time delivery model. Subjects recommended for second semester delivery in the full-time model could be delivered in the second academic session of the part-time model.

Where schools are offering the NPA part of the Group Award, it would be possible to deliver the other Units to make up the National Certificate through the school links programme, at the discretion of centres.

Suggested delivery schedule over two terms

Unit Title	Unit Code	Mandatory (M) Option (O)	Block 1	Block 2
Computer Games: Design	HX9V 45	M	✓	
Computer Games: Media Assets	HX9W 45	M		✓
Computer Games: Development	HX9X 45	M		✓
Art and Design: Animation Skills	F5BT 11	M	✓	
Media Production	DF16 11	M		✓
Gameplay	HY2F 45	M	✓	
Narrative Design and Development	FN8T 11	O	✓	
Creativity in Digital Domains	FN8W 11	O	✓	
Games Interface Design	FN90 11	O		✓
Mathematics for Interactive Computing	FN84 11	O		✓
Games Programming	FN8R 11	O	✓	
Mobile Game Development	FN8X 11	O		✓

In this example, after teaching optional Units and Art and Design: Animation skills (F5BT 11), Media Production (DF16 11) and Gameplay (FN8P 11), and a project could be set facilitated by the (HX9V 45) Computer Games: Design, Computer Games: Media Assets (HX9W 45) and Computer Games: Development (HX9X 45).

Computer Games: Design (HX9V 45) would be delivered in block 1. Outcome 1 would be complemented by Outcome 1 of Mobile Game Development (FN8X 11) as candidates are required to identify and then compare hardware specifications, input and output devices and to analyse emerging and mobile technologies. Outcome 2 of Computer Games: Design (HX9V 45) would be complemented by delivery alongside Character Creation (FN8Y 11) as characters could be one of the design elements. Outcome 1 of Gameplay (HY2F 45) would also allow further exploration of game characteristics. Outcome 3 of Computer Games: Design (HX9V 45) requires creation of a brief, a plan and a list of assets. Teaching for this could be integrated within Media Production (DF16 11) where candidates work as part of a team to explain the brief. Computing: Animation Fundamentals (F1KB 11) requires candidates to plan, produce and package an animation sequence to a specified brief. Narrative Design and Development (FN8T 11) involves producing a script for a given brief, Creativity in Digital Domains (FN8W 11) allows candidates to work together to present a range of responses to a given brief and present and evaluate

solutions. Games Interface Design (FN90 11) has candidate designs a games interface for a brief.

Outcome 2 of Computer Games: Media Assets (HX9W 45) has candidates plan media assets for a specified brief. This will be enhanced by the delivery of Outcome 2 of Sound Design in Visual Media Applications: An Introduction (FN92 11). Outcome 3 of Computer Games: Media Assets (HX9W 45) can be integrated with Outcomes 2 and 3 of 3D Modelling and Animation: An Introduction (FN91 11), Outcome 3 of Character Creation (FN8Y 11), Outcome 3 of Art and Design: Animation Skills (F5BT 11), Outcomes 1 and 2 of Computing: Animation Fundamentals (F1KB 11), Outcomes 2 and 3 of Sound Design in Visual Media Applications: An Introduction (FN921 11), Narrative Design (FN8T 11) and Outcomes 2 and 3 of Computer Games: Development (HX9X 45).

Outcome 1 of Computer Games Development (F917 11) has candidates develop a working game. This could be delivered with Games Programming (FN8R 11), to teach the language required to code the game. The language used is at the discretion of the delivering centre, depending on available resources. The Units Sound Design in Visual Media Applications: An Introduction (FN92 11), Character Creation (FN8Y 11) and Artificial Intelligence for Games (FN8V 11) would give candidates time to create the assets specified in the brief for the game, so when creating the working game the candidate already has a suitable portfolio.

Units chosen from the optional section are at the discretion of the centre and selection of different Units will impact on the integration opportunities. When delivering this award, the course co-ordinator should create an assessment grid for learners to facilitate the integration opportunities for the Units selected for delivery in the centre.

E-portfolios may be developed, and the use of wikis and blogs encouraged. It is envisaged that e-learning and e-assessment can be used for the theoretical elements of the course.

Although not specifically designed as an online or open learning program there is scope for e-learning and e-assessment of theoretical components. However, in the case of practical activities, other forms of evidence such as video recording may be utilised.

Full details on the suitability of individual Units for Open Learning are contained in each individual Unit specification. It is likely that special arrangements would be required to ensure that any assessments were the candidate's own work.

A portfolio approach to assessment should be taken. The portfolio may be paper or electronic/digital. The portfolio should be constructed over the period of each Unit, with candidates contributing material to the portfolio on an ongoing basis. The contents of the portfolio must be clearly labelled and related to specific Evidence Requirements. The inclusion of specific items in candidate portfolios should be negotiated between the candidates and teachers, with only the best examples of work stored.

Candidates are encouraged to use the internet for any research, however the evidence produced must be in their own words. Assessors should assure themselves of the authenticity of evidence.

It is essential that each candidate identifies their own contribution to tasks where working in a group and that they provides evidence for their own portfolio.

6.3 Potential Delivery Strands

Design Strand:

Unit title	Code	Mandatory/ Optional
*Computer Games: Design	HX9V 45	M
*Computer Games: Media Assets	HX9W 45	M
*Computer Games: Development	HX9X 45	M
Media Production	DF16 11	M
*Gameplay	HY2F 45	M
Art and Design: Animation Skills	F5BT11	M
Art and Design: Drawing Skills — Figure/Life Drawing 1	F9X2 11	O
Computing: Animation Fundamentals	F1KB 11	O
Narrative Design and Development	FN8T 11	O
Sound Design in Visual Media Applications: An Introduction	FN92 11	O
Creativity in Digital Domains	FN8W 11	O
Character Creation	FN8Y 11	O

Coding Strand:

Unit title	Code	Mandatory/ Optional
*Computer Games: Design	HX9V 45	M
*Computer Games: Media Assets	HX9W 45	M
*Computer Games: Development	HX9X 45	M
Media Production	HX9V 45	M
*Gameplay	HY2F 45	M
Art and Design: Animation Skills	F5BT11	M
Games Programming	FN8R 11	O
Artificial Intelligence for Games	FN8V 11	O
Mathematics for Interactive Computing	FN84 11	O
Games Interface Design	FN90 11	O
Computer Programming (Project) — Scripting Language	D6RB 11	O
Computing: Programming in a High-level Language — Fundamentals	F1K0 10	O

Animation Strand:

Unit title	Code	Mandatory/ Optional
*Computer Games: Design	HX9V 45	M
*Computer Games: Media Assets	HX9W 45	M
*Computer Games: Development	HX9X 45	M
Media Production	DF16 11	M
*Gameplay	HY2F 45	M
Art and Design: Animation Skills	F5BT11	M
Introduction to Computer Animation	D6RC 11	O
3D Modelling and Animation: An Introduction	FN91 11	O
Computing: Digital Media Elements for Applications	F1KS 11	O
Narrative Design and Development	FN8T 11	O
Games Interface Design	FN90 11	O
*Digital Media: Moving Images	HW4Y 45	O

*refer to History of Change for unit revisions

7 General information for centres

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Internal and external verification

All instruments of assessment used within this/these Group Award(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)**.

8 General information for candidates

The National Certificate in Computer Games Development at SCQF level 5 provides an introduction to games development, and will give you the opportunity to progress onto further study (eg National Certificate in Digital Media Computing at SCQF level 6).

The National Certificate in Computer Games Development at SCQF level 5 (GC8R 45) incorporates the National Progression Award (NPA) in Computer Games Development (G9RR 45) at SCQF level 5. The National Certificate will engage you by using a hands-on, practical approach to learning the skills for this sector. A range of Unit options are available from which you will become competent in designing a brief for a game. You will plan and design

a game to a given brief, plan and produce media assets for use in a game, develop a game through programming and animation techniques, explore artificial intelligence in games, character creation, sound design, games interface design, and 3D animation techniques. You will then evaluate the game, test it, and plan and create a promotional activity. The National Certificate will help you gain skills that are currently in demand by employers.

The National Certificate in Computer Games Development at SCQF level 5 is made up of a set of core, mandatory Units that you must achieve and a wide range of optional Units to allow programmes to be tailored to meet individual requirements. Availability of optional Units will depend on your centre. Twelve credits including all six of the core Units (see section 8.2), must be achieved to gain this qualification.

8.1 Modes of learning

You will be given some independence in learning, with extensive use being made of resources available through the internet. New concepts or skills will be taught or demonstrated in the classroom. You will develop your knowledge through research and analysis and your skills through practical work. In some topics, teaching staff may provide e-learning resources so that learning can be flexible to suit your needs. Working in groups or teams will also be encouraged.

The NC is intended to be as practical as possible, while at the same time developing underpinning knowledge and understanding. As a result, the assessment activities within the award will include a range of practical activities involving the use of computer hardware and software. Considerable use will be made of a specification (or brief) for which you will be required to design and/or implement a computer-based solution. Assessors may use checklists and/or evaluation forms to record your progress.

This award requires you to create a portfolio of project briefs, design solutions, media assets and working games. The use of blogs to plot progress, wikis to form a repository of technical terms and forms to allow group work will be encouraged.

Learning should take place via research, demonstration and practical activities, culminating in a portfolio of assets that will travel with you to further study or employment. This will be beneficial to you as industry representatives may expect a potential employee to be able to show the development of a concept gaming idea. This could include going from a project brief to the storyboarding, asset gathering and programming of the game, a test strategy for the game and a promotional activity for the game.

Depending on which route the centre offers, you will design, collect assets for, implement and code a game, having being taught how to develop and work to a brief. You will be taught to use specific packages to allow you to create your own animation, be exposed to different software for coding games, work with sound, graphics and video files, create characters and narratives for a specific brief. You will be taught the principles of gameplay, and the mathematical principles that underpin the games programming you will do. It is likely that you will take part in a group production and evaluation.

8.2 Core Units

HX9V 45 Computer Games: Design
You will acquire an understanding of the underlying concepts and fundamental principles involved in digital gaming planning and design, learn how to recognise and distinguish differences between numerous gaming platforms, environments and genres, be introduced to fundamental methods used in the planning and design stages involved in the production of a digital game. You will plan and design a level in a digital game, be introduced to the role of the games designer, investigate emerging technologies in gaming and analyse how this technology will affect games and peoples' expectations of games. You will investigate what organisations and activities are involved in the investment, creation, production and distribution of games and evaluate external factors to be considered when designing a digital game. You will evaluate methods used in the planning and design stages involved in the production of a digital game. You will plan and design a digital game to a given brief.

HX9X 45 Computer Games: Development
You will gain an understanding of the processes involved in the final stages of development of a digital game, learn how to use your chosen game development environment to bring together all the parts and produce a working game and gain an understanding of the evaluation process. You will go on to plan and deliver a promotional activity, devise a test strategy, test the game thoroughly recording the results, gain an understanding of the evaluation process and complete a user review of a game that applies a scoring/rating system.

HY2F 45 Gameplay
This Unit is designed to introduce you to the underlying characteristics of games that control the way a game is played and to develop an understanding of the parameters that enable a game to function successfully. A key element of this Unit is to play games and observe games being played with a view to identifying and exploring the game characteristics. Although the possibilities are expansive the key purpose is to allow you to understand the basic framework within which games are designed. On completion, you will be able to identify and describe game characteristics, produce a modification document for a game and test a game with modified game characteristics.

DF16 11 Media Production
Delivery of this will develop skills in media production, through group work and in working to a brief. On completion, you will be able to contribute to planning a group production, implementing a group production and evaluating the production.

F5BT 11 Art and Design: Animation Skills
This Unit will allow you to develop basic skills in producing and designing simple animation sequences for art and or design contexts. On completion, you will be able to research the development of animation and produce examples of basic animation using traditional and computer-based techniques.

HX9W 45 Computer Games: Media Assets
You will acquire an understanding of the different types of media asset required for developing a digital game and learn how to plan and produce media assets for use in a games development environment.

8.3 Optional Units

The optional section of this award covers a wide range of topics. Some of the possible Units are explained below, though availability of optional Units will depend on your centre.

FN91 11 3D Modelling and Animation: An Introduction
The purpose of this Unit is to provide you with the knowledge and skills to produce a short 3D animated sequence, gain an understanding of the basic principles of planning a 3D animation, and to develop practical skills through production of a short animated piece.

FN8Y 11 Character Creation
This Unit explores the significance of characters (playable and non-playable) within computer games, the importance of backstory and character properties, creation of characters in a specified genre.

FN8W 11 Creativity in Digital Domains
The purpose of the Unit is to introduce you to the creative process. You will look at development of creative strategies, visual communication styles and requirements in a range of digital domains, creative environments and their specific vocational requirements.

FN90 11 Games Interface Design
This Unit provides you with knowledge and skills in the principles of interface design. You will evaluate and compare different types of interface, looking at accessibility and usability.

FN84 11 Mathematics for Interactive Computing
This Unit provides you with the knowledge and skills to develop and apply mathematical skills to support technical aspects of computing. This will include computer numeracy, shape and geometry, volumes and vectors.

FN8X 11 Mobile Game Development
This Unit looks at the process for analysing and designing a mobile game, and emerging technologies.

FN8R 11 Games Programming
This provides you with working knowledge and skills in the programming techniques necessary to produce a working computer game.

FN8V 11 Artificial Intelligence for Games
This Unit looks at intelligence and techniques for problem solving, the concept of Artificial Intelligence (AI) within computer games and related technologies and how AI relates to game strategy.

FN8T 11 Narrative Design and Development
This Unit looks at the storyboarding process in a range of environments, analysis of genre conventions, codes and structures and narrative design from script to screen.

FN92 11 Sound Design in Visual Media Applications: An Introduction
This Unit provides you with the knowledge and skills to investigate the role of sound design in visual media. You will plan sound to support a visual media sequence, collect sound elements, and apply sound elements to support a visual media sequence.

An appropriate choice of optional Units will help you to prepare for progression to further study.

9 Glossary of terms

SCQF: This stands for the Scottish Credit and Qualification Framework, which is a new way of speaking about qualifications and how they inter-relate. We use SCQF terminology 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: One SCQF credit point equates to 10 hours of learning. NQ Units at SCQF levels 2–6 are worth 6 SCQF credit points, NQ Units at level 7 are worth 8 SCQF points.

SCQF levels: The SCQF covers 12 levels of learning. 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.

Dedicated Unit to cover Core Skills: This is a non-subject Unit that is written to cover one or more particular Core Skills.

Embedded Core Skills: This is where the development of a Core Skill is incorporated into the Unit and where the Unit assessment also covers the requirements of Core Skill assessment at a particular level.

Signposted Core Skills: This refers to the opportunities to develop a particular Core Skill at a specified level that lie outwith automatic certification.

Qualification Design Team: The QDT works in conjunction with a Qualification Manager/Development Manager to steer the development of the National Certificate/National Progression Award from its inception/revision through to validation. The group is made up of key stakeholders representing the interests of centres, employers, universities and other relevant organisations.

Consortium-devised National Certificates/National Progression Awards are those developments or revisions undertaken by a group of centres in partnership with SQA.

10 Appendices

Appendix 1: NOS

Appendix 1: NOS

The relevant elements of the National Occupational Standards (NOS) produced by Skillset, are listed below.

IM1 Work effectively in Interactive Media
IM2 Obtain Assets for Use in Interactive Media Products
IM3 Prepare Assets for Use in Interactive Media Products
IM5 Design User Interfaces for Interactive Media Products
IM6 Use Authoring Tools to Create Interactive Media Products
IM7 Code Scripts to Provide Functionality for Interactive Media Products
IM8 Determine the Implementation of Designs for Interactive Media Products
IM9 Provide Creative And Strategic Direction For Interactive Media Projects
IM12 Devise and Evaluate User Testing of Interactive Media Products
IM13 Conduct User Testing Of Interactive Media Products
IM20 Design Electronic Games
IM15 Write and Edit Copy for Interactive Media Products
IM16 Plan Content for Web and Multimedia Products
IM21 Program Electronic Games to develop functionality
IM22 Test Electronic Games
IM23 Create Narrative Scripts for Interactive Media Products
IM24 Create 2D Animations for Interactive Media Products
IM27 Create Sound Effects for Interactive Media Products
IM28 Create Music for Interactive Media Products

These have been mapped to Units on the Group Award, in the following table.

Mapping of National Occupational Standards to Units

Unit Code	Unit title	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM15	IM16	IM20	IM21	IM22	IM23	IM24	IM26	IM27	IM28	IM29
HX9V 45	Computer Games Design					✓							✓			✓					
HX9W 45	Computer Games: Media Assets		✓	✓					✓								✓		✓	✓	
HX9X 45	Computer Games: Development		✓	✓			✓	✓	✓			✓		✓	✓						
DF16 11	Media Production	✓	✓	✓		✓	✓		✓		✓	✓				✓					
HY2F 45	Game Play												✓								
F5BT11	Animation Skills		✓	✓			✓		✓			✓					✓		✓		
F9X2 11	Art and Design: Drawing Skills — Figure/Life Drawing 1		✓	✓																	
F1KB 11	Animation Fundamentals		✓	✓			✓		✓			✓	✓				✓		✓		
D6RC 11	Introduction to Computer Animation		✓	✓			✓		✓			✓	✓				✓		✓		
FN91 11	3D Modelling and Animation: an Introduction		✓	✓								✓									✓
FN8T 11	Narrative Design and Development		✓	✓					✓			✓	✓			✓					✓
FN92 11	Sound Design in Visual Media Applications: an Introduction		✓																✓		
FN8W 11	Creativity in Digital Domains		✓	✓						✓	✓	✓				✓					✓
FN8Y 11	Character Creation		✓	✓			✓		✓												
FN8X 11	Mobile Game Development								✓	✓											
FN8R 11	Games Programming													✓	✓						
FN8V 11	Artificial Intelligence for Games			✓			✓		✓			✓		✓	✓						
FN84 11	Mathematics for Interactive Computing																				
FN90 11	Games Interface Design					✓						✓									