



National Unit Specification

General information

Unit title: Computer Games: Design (SCQF level 5)

Unit code: HX9V 45

Superclass: CB

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Source: Scottish Qualifications Authority

Version: 02

Unit purpose

The purpose of this unit is to provide learners with an understanding of underlying concepts and fundamental principles involved in computer game planning and design.

This is a **non-specialist** unit, intended for a wide range of learners who may continue into further study of computer games or pursue a career in the computer games industry.

The unit covers the following knowledge and skills:

- ◆ Computer game genres and platforms
- ◆ Writing proposals for computer games
- ◆ Receiving and acting on feedback to proposals
- ◆ Elements of a game design
- ◆ Designing and planning computer games

On completion of this unit, learners will be able to plan and design computer games.

Learners may progress to GP04 46 NPA Computer Games: Development or NC Computer Games: Development.

Outcomes

On successful completion of the unit, the learner will be able to:

- 1 Describe elements of game design.
- 2 Create proposals for new computer games.
- 3 Produce a detailed design document for a computer game.

National Unit Specification: General information (cont)

Unit title: Computer Games: Design (SCQF level 5)

Credit points and level

1 National Unit credit(s) at SCQF level 5: (6 SCQF credit points at SCQF level 5).

Recommended entry to the unit

While entry is at the discretion of the centre, learners should have successfully completed HX9V 44 *Computer Games: Design* (SCQF level 4) or should possess basic digital literacy skills.

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Critical Thinking at SCQF level 5

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

Context for delivery

If this unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

This unit is part of the National Progression Award in Computer Games Development at SCQF level 5. As such, it may be delivered alongside other component units such as HX9W 45 *Computer Games: Media Assets* and HX9X 45 *Computer Games: Development*. In this circumstance, teaching, learning and assessment may be integrated across the units. Further details are provided in the support notes.

The Assessment Support Pack (ASP) for this unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website (<http://www.sqa.org.uk/sqa/46233.2769.html>).

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should 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.

National Unit Specification: Statement of standards

Unit title: Computer Games: Design (SCQF level 5)

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Where evidence for outcomes is assessed on a sample basis, the whole of the content listed in the performance criteria section must be taught and available for assessment. Learners should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Describe elements of game design.

Performance criteria

- (a) Describe the characteristics of different game genres
- (b) Identify features of game platforms
- (c) Accurately describe design elements from observable design areas in existing games

Outcome 2

Create proposals for new computer games.

Performance criteria

- (a) Identify a title, theme and genre for proposed computer games
- (b) Identify the platform and controls for the proposed computer games
- (c) Describe design elements for the proposed computer games, referring to existing games
- (d) Refine a computer game proposal based on peer feedback

Outcome 3

Produce a detailed design document for a computer game.

Performance criteria

- (a) Produce a design document consistent with a design proposal
- (b) Describe design elements for a proposed game
- (c) Illustrate elements of a proposed game
- (d) Produce a list of assets for the proposed game

Evidence requirements for this unit

Evidence is required to demonstrate that learners have achieved all outcomes and performance criteria. Learners will need to provide evidence to demonstrate their knowledge and/or skills across all outcomes.

The evidence requirements for this unit will consist of two types of evidence: **knowledge evidence** and **product evidence**.

National Unit Specification: Statement of standards (cont)

Unit title: Computer Games: Design (SCQF level 5)

The **knowledge** evidence will relate to all outcomes and performance criteria. It may take any appropriate format (including oral). The knowledge evidence may be written or oral, or a combination of both. The evidence will relate to explicit knowledge (such as Outcome 1, Performance Criterion (a)) and underpinning knowledge (such as Outcome 2, Performance Criterion (a)). The focus of the knowledge evidence is breadth, not depth, so the amount of evidence should be the minimum consistent with the performance criteria. It may be produced with access to reference materials over the life of the unit.

Sampling of knowledge is permissible in certain contexts, such as when traditional testing is used to generate the evidence. When sampling is used, the sampling frame must be broad enough to ensure that every outcome is covered (but not every performance criterion in every outcome). In this circumstance, the test must be carried out under controlled, supervised and timed conditions, without access to reference materials.

The **knowledge** evidence is required to demonstrate that the learner can:

- ◆ Describe the characteristics of **at least three** game genres
- ◆ Identify the features of game platforms utilised by **at least two** existing games
- ◆ Accurately describe **at least four** of the following design elements from observable design areas in **at least two** existing games:
 - Narrative/objective design
 - Character design
 - Level/environment design
 - Game mechanics/gameplay design
 - User interface design

The **product** evidence will relate to Outcomes 2 and 3, and will take the form of **at least two** complete computer game proposals (Outcome 2) for two different platforms; and **at least one** complete computer game design document (Outcome 3).

One proposal must be for a simple computer game that could be feasibly made by a learner at this level (further details are provided in the support notes). The other proposal must be for a more complex computer game of a level similar to a contemporary commercial computer game. Each proposal must include:

- ◆ Title
- ◆ Genre
- ◆ Theme
- ◆ Platform and game controls
- ◆ Brief descriptions of **at least four** of the following design elements, one of which must be narrative/objective design:
 - Narrative/objective design
 - Character design
 - Level/environment design
 - Game mechanics/gameplay design
 - User interface design
- ◆ Descriptions and images of **at least four** features in existing computer games that exemplify features of the proposed computer game
- ◆ Suggestions for changes to **at least one** computer game proposal, based on peer feedback

National Unit Specification: Statement of standards (cont)

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The design document must relate to one of the proposals produced for Outcome 2. The design document must include:

- ◆ Detailed descriptions of **at least four** of the following design elements, one of which must be narrative/objective design:
 - Narrative/objective design
 - Character design
 - Level/environment design
 - Game mechanics/gameplay design
 - User interface design
- ◆ **At least four** drawings (traditional or digital media) supporting the chosen design elements
- ◆ A list of media assets required to produce the game

The **product** evidence must be produced under supervised, loosely controlled conditions and may be conducted over an extended period of time. For example, some parts of it may be carried out without supervision from an assessor. In this scenario, authentication will be required to ensure that the product is the work of the learner.

The SCQF level (Level 5) of this unit provides additional context on the nature of the required evidence and the associated standards. The SCQF level descriptors (<http://scqf.org.uk/wp-content/uploads/2014/03/SCQF-Level-Descriptors-WEB-Aug-2015.pdf>) should be used (explicitly or implicitly) when making judgements about the evidence.

When evidence is produced in uncontrolled or loosely controlled conditions it must be authenticated. The *Guide to Assessment* provides further advice on methods of authentication (https://www.sqa.org.uk/files_ccc/Guide_To_Assessment.pdf).

The *Guidelines on Approaches to Assessment* (see the support notes section of this specification) provides specific examples of instruments of assessment.



National Unit Support Notes

Unit title: Computer Games: Design (SCQF level 5)

Unit support notes are offered as guidance and are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this unit

Please note that the following guidance, relating to specific outcomes, does not seek to explain each performance criterion, which is left to the professionalism of the teacher. It seeks to clarify the statement of standards where it is potentially ambiguous. It also focuses on non-apparent teaching and learning issues that may be over-looked, or not emphasised, during unit delivery. As such, it is not representative of the relative importance of each outcome or performance criterion.

Outcome 1

It is anticipated that learners will play or observe the gameplay of a variety of computer games from different genres. Learners should be able to describe a range of game genres in terms of the common game features. Game genres include FPS (First Person Shooter), Puzzle, RPG (Role Playing Game), Platformer, Action, Driving, Sport, RTS (Real Time Strategy), Educational, Simulation, Fighting, etc. Some games may fit more than one genre, so this may provide an opportunity for group discussion and debate.

Learners should be able to describe games in terms of the observable design elements. Note that not all games will feature all five elements listed below. For example, puzzle games may not feature characters or narrative. Computer games feature a number of design elements:

- ◆ Narrative/objective design
- ◆ Character design
- ◆ Level/environment design
- ◆ Game mechanics/gameplay design
- ◆ User interface design

Learners should be able to identify the features of gaming platforms used in specific games. Features of game platforms are evolving constantly, but (at time of writing) includes: control input, motion controllers, camera, motion tracking, sound input or voice recognition, 3D screens, virtual reality, augmented reality, GPS or location systems, surround sound, etc.

Outcome 2

Pitching ideas to a creative team or an investor is a key skill in a creative industry such as computer game design. This outcome requires learners to produce proposals for two different games and to refine a proposal based on peer feedback. The proposals are brief outlines of the games, highlighting some of the key features and unique selling points of the games. One game proposal must be for a game which could be feasibly constructed at this level. It would be advantageous to the learner to observe or play examples of suitable games, to better understand the level of complexity required.

National Unit Support Notes (cont)

Unit title: Computer Games: Design (SCQF level 5)

The second game proposal must be for a new game and must be of comparable complexity to a modern commercial game. Peer feedback may be gathered through surveys or focus groups meetings.

Learners should have an awareness of existing computer games and be able to describe new games by relating them to existing games. For example, a learner might describe the mechanics of a proposed game by comparing them to the mechanics of another, existing game.

At this level, a feasible game would be a two-player bat and ball game, such as Pong, but with some additional features. This game has each player controlling the vertical movement of bats at each side of the screen. A ball is hit back and forth between the players' bats and if the ball hits the wall behind a player, then that player loses. The game is played over a number of rounds, with a scoreboard displaying the status of the wins/losses. Such a game might feature only five media assets — a bat, a ball, a 'hit' sound, a scoreboard, and a message indicating the winner/game over.

Another feasible game would be a 'catch' game, with the player moving a character left and right across the bottom of the screen and catching objects that periodically fall from the top of the screen. Points are scored by catching the objects, and a score is displayed in a scoreboard. The game is time limited, with a timer displaying how many seconds are left until the end of the game. This game might feature five media assets — the player character, the falling object, a 'catch' sound, a scoreboard, and a timer.

A third feasible game would be a platformer or maze game, with the player controlling a character that must find a key to exit the level. The challenge is locating the key and exit, whilst trying to avoid an enemy that tracks the player around the maze. This could feature as little as five media assets — the character, the maze walls/platforms, the enemy, the key collection sound, and the key.

Outcome 3

A game design document is a detailed guide to the features of a game. It provides a blueprint for the development of a game, identifying the features of the game, which can be shared with the creative team that will develop the game.

A fully featured game design document will contain detailed information about the following five elements of game design:

- ◆ Narrative/objective design
- ◆ Character design
- ◆ Level/environment design
- ◆ Game mechanics/gameplay design
- ◆ User interface design

National Unit Support Notes (cont)

Unit title: Computer Games: Design (SCQF level 5)

Learners should plan at least **four** observable design elements of one computer game. The following types of evidence would be acceptable:

- ◆ **Narrative/objective design** — storyboard, mind map, story, script
- ◆ **Character design** — character/object description, character sketch, digital image
- ◆ **Level/environment design** — written description, illustrations, environmental pictures
- ◆ **Game mechanics/gameplay design** — list of rules, flow chart of one logical sequence of gameplay, spreadsheet of possible outcomes, game layout chart, top-down design, a document that specifies values of variables that affect game play or game mechanics ie, object.attribute = value or playercar.speed = veryfast
- ◆ **User interface design** — navigation diagrams; screen designs showing feedback, instructions, menus and buttons; description of the controls

Game design documents often contain illustrations to better inform the development team of the features of the game. Illustrations may include character designs, storyboards, level designs, maps, screen layouts, structure diagrams, flowcharts, concept art, etc.

Guidance on approaches to delivery of this unit

If this unit is undertaken in the context of the NPA in Computer Games Development at SCQF level 5, the following sequence of delivery is recommended:

- ◆ *Computer Games: Design*
- ◆ *Computer Games: Media Assets*
- ◆ *Computer Games: Development*

A variety of different types of information sources should be used for Outcome 1. Suitable sources include current magazines and a range of websites available on the internet. Learners should be allowed to actively explore various gaming platforms. Learners could record the findings of their research on a pro forma with suitable headings to aid gathering of appropriate information.

This unit could be delivered in the context of a larger game, with each learner designing a level of a computer game. In these circumstances, it is essential that each learner identifies their own contribution to the design task and provides evidence for their own individual portfolio.

The actual distribution of time between outcomes is at the discretion of the centre. However, the following distribution and order is suggested:

Outcome 1: 10 hours
Outcome 2: 10 hours
Outcome 3: 20 hours

Summative assessment may be carried out at any time. However, when testing is used (see evidence requirements) it is recommended that this is carried out towards the end of the unit (but with sufficient time for remediation and re-assessment). When continuous assessment is used (such as the use of a web log), this could commence early in the life of the unit and be carried out throughout the life of the unit.

National Unit Support Notes (cont)

Unit title: Computer Games: Design (SCQF level 5)

There are opportunities to carry out formative assessment at various stages in the unit. For example, formative assessment could be carried out on the completion of each outcome to ensure that learners have grasped the knowledge contained within it. This would provide assessors with an opportunity to diagnose misconceptions, and intervene to remedy them before progressing to the next outcome.

Guidance on approaches to assessment of this unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

A portfolio approach to assessment should be taken. The portfolio may be paper or electronic (digital). The portfolio should be constructed over the life of the unit, with learners contributing material to the portfolio on an on-going basis. The contents of the portfolio should be clearly labelled and related to specific evidence requirements. The inclusion of specific items in the portfolio should be negotiated between learner and tutor, with only the 'best' example of work stored.

E-assessment may be appropriate for some assessments in this unit. 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 e-checklists. Centres that 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.

Further advice is available in SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003), SQA Guidelines on E-assessment for Schools (BD2625, June 2005).

If an e-portfolio is used to capture learners' work, it may take one of a variety of forms, ranging from general purpose digital repositories to specialised e-portfolio products. For example, a web log could be used to record learner activity over the duration of the unit. Specific entries to the blog could provide sufficient evidence in their own right (for example, a required identification) or could link to a file stored in another web service (such as a file hosting site). The use of a blog would aid authentication since any record of a learner's day-to-day activities would provide implicit evidence of participation and ownership.

If a learner is undertaking this unit as part of the NPA in Computer Games Development at SCQF level 5, then the evidence should be retained as part of a portfolio of work required for the units *Computer Games: Media Assets* and *Computer Games: Development* (SCQF level 5).

A more contemporary approach to assessment would involve the use of a web log (blog) to record learning (and the associated activities) throughout the life of the unit. The blog would provide knowledge evidence (in the descriptions and explanations) and product evidence (using, for example, video recordings). The blog should be assessed using defined criteria to permit a correct judgement about the quality of the evidence. In this scenario, every performance criterion must be evidenced; sampling would not be appropriate.

National Unit Support Notes (cont)

Unit title: Computer Games: Design (SCQF level 5)

Formative assessment could be used to assess learners' knowledge at various stages throughout the life of the unit. An ideal time to gauge their knowledge would be at the end of each outcome. This assessment could be delivered through an item bank of selected response questions, providing diagnostic feedback to learners.

If a blog is used for summative assessment, it would also facilitate formative assessment, since learning (including misconceptions) would be apparent from the blog, and intervention could take place to correct misunderstandings on an on-going basis.

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this unit. 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.

Opportunities for developing Core and other essential skills

In this unit, learners are required to investigate technologies and to create a design which can provide opportunities to gather evidence towards aspects of *Information and Communication Technology* and *Problem Solving* at SCQF level 5.

Learners should produce a clear and feasible design brief for a computer game and may also choose to plan a narrative design which could include writing a story, play or plot and provide opportunities to gather evidence towards aspects of *Communication* at SCQF level 5.

This unit may be delivered in the context of a larger game, with each learner designing a level of a computer game. This would provide opportunities to gather evidence towards aspects of *Working with Others* (SCQF level 5).

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when learners achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

History of changes to unit

Version	Description of change	Date
02	Core Skills Component Critical Thinking at SCQF level 5 embedded.	31/05/18

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General information for learners

Unit title: Computer Games: Design (SCQF level 5)

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

The aim of this unit is for you to gain an understanding of underlying concepts and fundamental principles involved in computer game planning and design.

You will learn how to recognise and distinguish differences between gaming platforms and computer game types. You will be introduced to fundamental methods used in the planning and design of computer games, and you will design a computer game of your own. You will also learn about writing computer game proposals and receiving feedback about your ideas.

The unit covers the following knowledge and skills:

- ◆ Computer game genres and platforms
- ◆ Writing proposals for computer games
- ◆ Elements of a game design
- ◆ Designing and planning computer games

On successful completion of this unit, you will be able to plan and design computer games.

You will be assessed by written or oral reports, by undertaking research into different computer games, and by producing a game design of your own.

This Unit has the Critical Thinking component of Problem Solving embedded in it. This means that when you achieve the Unit, your Core Skills profile will also be updated to show you have achieved Critical Thinking at SCQF level 5.