

Draft Specification

Unit 5: Games Authoring

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Unit 5: Games Authoring

Levels 1 and 2

Introduction

The computer game industry is one of the fastest growing sectors of the economy. Some games have crossed over into blockbuster entertainment territory, with people queuing overnight to get the latest releases.

What makes some games better than others? How do designers come up with good ideas and how do these initial ideas get transformed into games that people want to play?

In this unit you will learn about different types of computer games, investigate what makes a game successful and learn how to plan, design and create great games for others to play.

Recommended prior learning

This unit builds on the knowledge and skills developed by the Key Stage 3 National Curriculum programme of study for ICT.

Learning outcomes

On completion of this unit a learner should:

- LO.1 Know about different types of games, game features and game play
 - LO.2 Be able to produce a game proposal and production plan
 - LO.3 Be able to design and develop games for others to play
 - LO.4 Be able to showcase achievements
 - LO.5 Be able to review games and suggest improvements
 - LO.6 Be able to use ICT efficiently and safely
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What you need to learn

- LO.1** know about different types of games, game elements and game play
- Genre:** action, adventure, platform, puzzle, role play games (RPG), massively multi-player online games (MMOG), social, simulation, sport and strategy, serious games
- Style:** cartoon, retro, realistic, environment (3D, 2D), single/multi player
- Platform:** PC, mobile phone, console, online
- Rating:** PEGI
- Game elements:** light effects, sound (effects, music, speech), story, characters, sprites, 3D models, backgrounds, tiles, textures, fonts
- Game play:** scoring, levels, rules, instructions, controls, interaction
- LO.2** Be able to produce a game proposal and production plan
- Proposal:** target audience, genre and style, platform and rating, game features (e.g. theme, objective, environment, story outline, game play, characters, assets), test plans (functionality and playability); justification, feedback
- Plan:** timeline for completion, scheduling of tasks
- LO.3** Be able to design and develop games for others to play
- Design:** game environment, pathways, levels, assets, story - narrative, challenges, rules, navigation and controls, interaction; feedback
- Preparation of assets:** backgrounds, 3D models, objects, sprites, sounds; original, ready made
- Develop:** import assets, create features (e.g. levels, scoring systems, events, controls and actions), produce prototypes, elicit and respond to feedback from test users (e.g. experienced game player, novice, representative of target audience)
- Test:** functionality (logic, rules, levels, events, actions and controls, user instructions), suitability for audience, user experience (playability, interactivity)
- LO.4** Be able to showcase achievements
- Showcase:** use of assets, adherence to technical specification

- LO.5 Be able to review games and suggest improvements** **Review:** strengths and weaknesses, playability (e.g. challenge, interest, duration, start up, progress), interactivity (e.g. controls, effects), rules (e.g. clear, easy to learn, logical), instructions (e.g. clarity, prompts, help); user ratings
- LO.6 Be able to use ICT efficiently and safely** **File management:** save work regularly, use sensible filenames, create folders and sub-folders to organise files, copy, move and delete files and folders, make regular backups, choose appropriate file formats, have an awareness of viruses, create 'readme' files to provide technical information, e.g. system requirements, use compression techniques, create runtime versions
- Personal effectiveness:** select appropriate ICT tools and techniques, customise settings, create and use shortcuts, use available sources of help, plan work
- Quality assurance:** spell check, proof read, seek views of others, authenticate work
- Legislation and codes of practice:** acknowledge sources, respect copyright, protect confidentiality
- Health and safety:** position hardware, cables, seating correctly, take regular breaks

The ICT Skills you will need

Games authoring

Generic skills for 2D and 3D game engines

You must be able to:

- select, create and modify images suitable for using as sprites
- import images for sprites into the game engine
- select appropriate sprite properties
 - size
 - transparency
 - colour/texture
- select, create and modify sounds and their properties
 - effect (chorus, echo, reverb)
 - type (effect, background music)
 - use (play once, looped, volume, pan)
 - attach to a trigger/event
 - select and apply appropriate triggers/actions
- select and use appropriate sound types (e.g.wav,midi,mp3,ogg)
- create, import and apply textures
- select appropriate object properties
 - visibility
 - solidity
 - depth
- select appropriate events associated with objects

- select movement associated with mouse/keyboard
 - collisions detection
 - timings
 - health
 - score
 - next room
- select appropriate background
- select and apply an appropriate player starting point
- create a game with a number of rooms/levels, objects and a background
 - add a room
 - room size
 - grid size
 - textures
- select appropriate naming conventions for assets and games
- save game in an appropriate format
 - executable (.exe) file
 - editable file

3D Game Engines

In addition, when using 3D game engines:

- select and use 3D objects/props/models
- select and use appropriate tiles/prefabs
- select and apply special effects (e.g. emitters, fog, rain)
- select and apply appropriate lighting
- create models from selected sprites to incorporate into game engine
- manipulate assets in 3D space
 - position
 - resize
 - rotate
- allow objects/models to move within your 3D world (e.g. character moves, door opens)

What you must produce as evidence for Unit 5: Games Authoring

You will work on a project which should take you approximately 30 hours to complete. You will get marks for:

- (a) Your initial proposal for the game (5 marks)
 - (b) Your design and development work (11 marks)
 - (c) The functionality of your game (9 marks)
 - (d) The user experience (7 marks)
 - (e) Your showcase for the game (5 marks)
 - (f) Your game review (5 marks)
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Assessing learners' work

Six activities are used to assess achievement on **Unit 5: Game authoring**.

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|--|--------------|
| (a) Initial proposal (LO.1 & LO.2) | 0 - 5 marks |
| (b) Design and development work (LO.1, LO.3, LO.6) | 0 - 11 marks |
| (c) Game functionality (LO.3) | 0 - 9 marks |
| (d) User experience (LO.3) | 0 - 7 marks |
| (e) Showcase (LO.4 & LO.6) | 0 - 5 marks |
| (f) Game review (LO.5) | 0 - 5 marks |

Mark descriptions are defined at 1, 3, 5, 7, 9 and 11 marks as appropriate.

Mark descriptions comprising a number of statements are provided for each activity.

Whenever assessments are made, the mark descriptions given should be used to judge the mark which best fits the learner's performance. The statements within a description should not be taken as discrete and literal hurdles, all of which must be fulfilled for a mark to be awarded. Learners should be awarded the most appropriate mark within any range on a 'best fit' basis, making allowance for balancing the strengths and weaknesses in the work presented.

The mark descriptions within a skill area are designed to be hierarchical. A description at a particular mark subsumes those at lower marks. It is assumed that activities that access higher marks will involve a more sophisticated approach and/or more complex treatment.

Adjacent descriptions should be used when making judgements and use made of the intermediate marks (i.e. 2, 4, 6, 8 and 10) where performance exceeds one description and only partially satisfies the next.

The weightings for each assessment objective in this unit are:

Activity	AO1	AO2	AO3	AO4
(a)	5			
(b)	2	4	5	
(c)		4	5	
(d)			4	3
(e)			5	
(f)				5
TOTAL	7	8	19	8
%	17	19	45	19

(a) Unit 5: Games Authoring (Level 1) –Proposal (LO.1 & LO.2)

1 mark	The learner may have needed guidance, but must have provided an outline proposal that gives some indication of what is intended
3 marks	<p>The learner may have needed guidance, but must have provided a proposal that outlines:</p> <ul style="list-style-type: none">• the target audience• genre, style, platform and rating• some features of the game• how the game will be tested <p>The proposal must be supported by some brief reasons.</p>
5 marks	<p>The learner may have needed limited guidance, but must have produced a proposal that includes:</p> <ul style="list-style-type: none">• characteristics of the target audience• genre, style, platform and rating• some features of the game• how the game will be tested for functionality and playability <p>The proposal must be supported by sensible reasons and include some constructive feedback from others.</p>

(b) Unit 5: Games Authoring (Level 1) – Design and Development (LO.1, LO.3 & LO.6)

1 mark	The learner may have needed guidance, but must have produced some basic design work
3 marks	The learner may have needed guidance, but must have developed the proposal into a basic design, including: <ul style="list-style-type: none"> • a workable plan for completion of the project • some information about key aspects of the game design • preparation of some assets
5 marks	The learner may have needed limited guidance, but must have recorded progress from initial proposal, through prototyping and testing, to the final game, including: <ul style="list-style-type: none"> • a workable plan for completion of the project • some aspects of the design process with some feedback • comments on some key design decisions • preparation of some appropriate assets
7 marks	The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, showing: <ul style="list-style-type: none"> • timeline and scheduling • some aspects of the design process with some feedback • comments on some key design decisions • preparation of appropriate assets
9 marks	The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, communicating: <ul style="list-style-type: none"> • time allocation and scheduling • the design process with some evidence of useful testing and feedback • explanation of key design decisions • preparation of a variety of appropriate assets

11 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, communicating:</p> <ul style="list-style-type: none">• time allocation and scheduling• the design process with some evidence of useful testing and response to feedback• explanation of key design decisions• preparation of a variety of appropriate assets
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(c) Unit 5: Games Authoring (Level 1) – Game functionality (LO.3)

1 mark	The learner may have needed guidance, but some aspects of the game work
3 marks	The learner may have needed guidance, but some aspects of the game work and game play demonstrates limited awareness of audience
5 marks	The learner may have needed limited guidance, but some aspects of the game work as intended and: <ul style="list-style-type: none">• game type and game play demonstrate some awareness of audience• user instructions cover some key aspects
7 marks	Some aspects of the game work as intended and: <ul style="list-style-type: none">• game type, style and game play demonstrate reasonable awareness of audience• user instructions cover most key aspects
9 marks	Most aspects of the game work as intended and: <ul style="list-style-type: none">• game type, style and game play demonstrate good awareness of audience interests and capability• user instructions cover key aspects

(d) Unit 5: Games Authoring (Level 1) – User experience (LO.3)

1 mark	The learner may have needed guidance, but the degree of playability demonstrates limited awareness of audience.
3 marks	The learner may have needed guidance, but the degree of playability and interactivity demonstrates limited awareness of audience and purpose.
5 marks	The learner may have needed limited guidance, but the degree of playability and interactivity demonstrate some awareness of audience and purpose
7 marks	The degree of playability and interactivity demonstrate some awareness of audience and purpose

(e) Unit 5: Games Authoring (Level 1) – Showcase (LO.4 & LO.6)

1 mark	The learner may have had guidance ,but at least some of the required evidence is accessible using the Unit 5 Moderator's Toolkit
3 marks	The learner may have had guidance, but most of the required evidence is accessible using the Unit 5 Moderator's Toolkit
5 marks	The learner may have had limited guidance but: <ul style="list-style-type: none">• most of the required evidence is accessible using the Unit 5 Moderator's Toolkit• some appropriate assets are used to present the game

(f) Unit 5: Games Authoring (Level 1) – Game Review (LO.5)

1 mark	The learner may have had guidance, but must have made some comments about the game
3 marks	The learner may have needed guidance, but must have made some relevant comments on strengths and weaknesses of the game with: <ul style="list-style-type: none">• user ratings and comments• an extract from the game to support the comments
5 marks	The learner may have had limited guidance, but must have made some evaluative comments on strengths and weaknesses of the game with: <ul style="list-style-type: none">• consideration of playability and interactivity• user ratings and comments• some extracts from the game to support the comments

(a) Unit 5: Games Authoring (Level 2) – Proposal (LO.1 & LO.2)

1 mark	<p>The learner may have needed guidance, but must have produced a proposal that outlines:</p> <ul style="list-style-type: none">• the target audience• genre, style, platform and rating• some features of the game• how the game will be tested
3 marks	<p>The learner must have produced a complete proposal that details:</p> <ul style="list-style-type: none">• characteristics of the target audience• genre, style, platform and rating• features of the game• how the game will be tested for functionality and playability <p>The proposal must be supported by sensible reasons and include constructive feedback from others.</p>
5 marks	<p>The learner must have produced a complete and convincing proposal that details:</p> <ul style="list-style-type: none">• characteristics of the target audience• genre, style, platform and rating• features of the game• how the game will be tested for functionality and playability <p>The proposal must be supported by sound reasoning, incorporating constructive feedback from others.</p>

(b) Unit 5: Games Authoring (Level 2) – Design and Development (LO.1, LO.3 & LO.6)

1 mark	<p>The learner may have needed guidance, but must have developed the proposal into a basic design that:</p> <ul style="list-style-type: none"> • includes a workable plan for completion of the project • provides some information about key aspects of the game design
3 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, including:</p> <ul style="list-style-type: none"> • timeline and scheduling • some aspects of the design process with some feedback • comments on some key design decisions • preparation of appropriate assets
5 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, showing:</p> <ul style="list-style-type: none"> • time allocation and scheduling • the design process with some evidence of useful testing and response to feedback • explanation of key design decisions • preparation of a variety of appropriate assets
7 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, communicating:</p> <ul style="list-style-type: none"> • time allocation and scheduling • the design process with evidence of useful testing and response to user feedback • explanation of most design decisions • preparation of a variety of effective assets

9 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, clearly communicating:</p> <ul style="list-style-type: none"> • time allocation and scheduling • the entire design process with evidence of effective testing and response to user feedback • full justification of design decisions • development of a wide range of effective assets
11 marks	<p>The learner must have recorded progress from initial proposal, through prototyping and testing, to the final game, clearly communicating:</p> <ul style="list-style-type: none"> • time allocation and scheduling • the entire design process with evidence of extensive testing and detailed response to user feedback • full justification of design decisions • development of a wide range of effective assets

(c) Unit 5: Games Authoring (Level 2) – Game functionality (LO.3)

1 mark	The learner may have needed guidance but some aspects of the game work as intended and game play demonstrates limited awareness of audience
3 marks	Some aspects of the game work as intended and: <ul style="list-style-type: none"> • game type, style and game play demonstrate some awareness of audience • user instructions cover most key aspects
5 marks	Most aspects of the game work as intended and: <ul style="list-style-type: none"> • game type, style and game play demonstrate good awareness of audience interests and capability • user instructions cover key aspects, using appropriate language
7 marks	All aspects of the game work as intended and: <ul style="list-style-type: none"> • game type, style and game play demonstrate a sound awareness of audience interests and capability • user instructions are complete, using appropriate language and style
9 marks	All aspects of the game work as intended and: <ul style="list-style-type: none"> • game type, style and game play demonstrate an astute awareness of audience interests and capability • user instructions are complete, clear and concise using appropriate language and style

(d) Unit 5: Games Authoring (Level 2) – User experience (LO.3)

1 mark	The learner may have needed guidance but the degree of playability demonstrates limited awareness of audience and purpose.
3 marks	The degree of playability and interactivity demonstrate some awareness of audience and purpose.
5 marks	The degree of playability, interactivity and originality demonstrate good awareness of audience and purpose
7 marks	The degree of playability, interactivity and originality demonstrate sound awareness of audience and purpose

(e) Unit 5: Games Authoring (Level 2) – Showcase (LO.4 & LO.6)

1 mark	The learner may have needed guidance but some of the required evidence is accessible using the Moderator's Toolkit
3 marks	Most of the required evidence is accessible using the Unit 5 Moderator's Toolkit Appropriate assets are used to present the game
5 marks	All of the required evidence is accessible using the Unit 5 Moderator's Toolkit Effective assets are used to showcase the game

(f) Unit 5: Games Authoring (Level 2) – Game Review (LO.5)

1 mark	The learner may have needed guidance, but must have commented on some aspects of the game
3 marks	Evaluative comments on the strengths and weaknesses of the game with: <ul style="list-style-type: none">• consideration of playability, interactivity, rules, instructions• user ratings and comments• extracts from the game to illustrate the comments
5 marks	A realistic evaluation of the strengths and weaknesses of the game with: <ul style="list-style-type: none">• consideration of playability, interactivity, rules, instructions and originality• user ratings and comments• well-chosen extracts from the game to illustrate the comments

Delivering Unit 5: Games Authoring

Most learners will already have plenty of experience of playing computer games and will be able to explain why they like playing their favourite games. However, they will almost certainly have little or no understanding of the process of creating a computer game or know why certain features work on certain genres of computer game. With this in mind, they must be given the opportunity to evaluate different types of computer games, considering their graphics, music and sound effects, playability, challenge, originality.

Level 1 learners in particular will almost certainly need help to formulate their initial proposal. Some learners may be tempted to skip this important stage. It may be useful to look at how successful designers go about coming up with ideas for good games and trying to model what they do. It is the idea of a computer game upon which everything else depends. Learners need to devote enough time to this stage to ensure that the initial ideas that they come up with are viable given the limitations of the ICT tools available to them, their level of expertise and the amount of time they have to produce the finished game. Teachers should instigate a formal sign-off process which has to be completed prior to serious development work getting underway.

Learners need to be taught the importance of good design and how to capture key aspects of the design process, showing how their designs developed from initial ideas through to final product. They must learn the value of feedback and ensure that they get feedback from suitable people throughout the project. The selection of a team of 'test buddies' who will give them honest and critical feedback could be a key success factor.

Learners need to be able to use a wide range of software tools, including sound, graphics and games creation software, in order to create and edit game objects and build their game engine. They should be set a number of smaller game making projects which will help them familiarise themselves with the tools before embarking on their final game.

Learners must use dedicated games authoring software or multimedia software capable of creating 2D and 3D games, such as Flash or Flash variants. The software needs to be able to create rules to control the game (by handling variables); this is in addition to manipulating the graphics and audio.

Learners do not have to produce all the game objects themselves. However, when considering materials produced by others they must be mindful of legal and other constraints and the importance of acknowledging sources.

Learners must recognise that prototyping and testing is an integral part of game creation. They will need help to develop a suitable testing strategy and a test plan. Test buddies have an important role to play in this process. Learners will need to be taught how to be a good test buddy. Amongst other things, this is likely to entail attempting to 'bust' someone else's game!

Continual evaluation of their own and others' work will help learners develop reflective skills.

Learners will need to be familiar with the content and format of games reviews in magazines and practise producing reviews themselves.

Whilst there is no requirement for learners to produce an eportfolio, they will need to present their finished game and supporting materials in an appropriate format.

Links

Other units Unit 2 - Multimedia and Unit 3 - Graphics provide a good foundation for this unit.

Resources

Text books

Jason Darby, *Make Amazing Games in Minutes* (Charles River Media, 2005) ISBN-10: 1584504072

Jason Darby, *Game Creation for Teens* (Delmar, 2008) ISBN-10: 159863500X

Jason Darby, *Picture Yourself Creating Video Games* (Delmar, 2008) ISBN-10: 1598635514

Jacob Habgood, Mark Overmars, *The Game Maker's Apprentice: Game Development for Beginners* (Apress, 2006) ISBN 1590596153.

Nanu Swamy and Naveena Swamy, *Basic Game Design & Creation for Fun and Learning*, Charles River Media, 2006, ISBN 1584504463.

Andrew Rollings, Ernest Adams, *On Game Design*, New Riders Publishing, 2003, ISBN 1592730019