OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

IT

A PROJECT APPROACH TO DELIVERY – eCOMMERCE GAME PLATFORM

Version 2

ocr.org.uk/it

CONTENTS

INTRODUCTION

The purpose of this guide is to give you an overview of how you could holistically deliver a range of units from Cambridge Technicals in IT Level 3 (IT Application Developer Pathway) through the delivery of a project.

Link to qualification: https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

Title: GameMaker UK

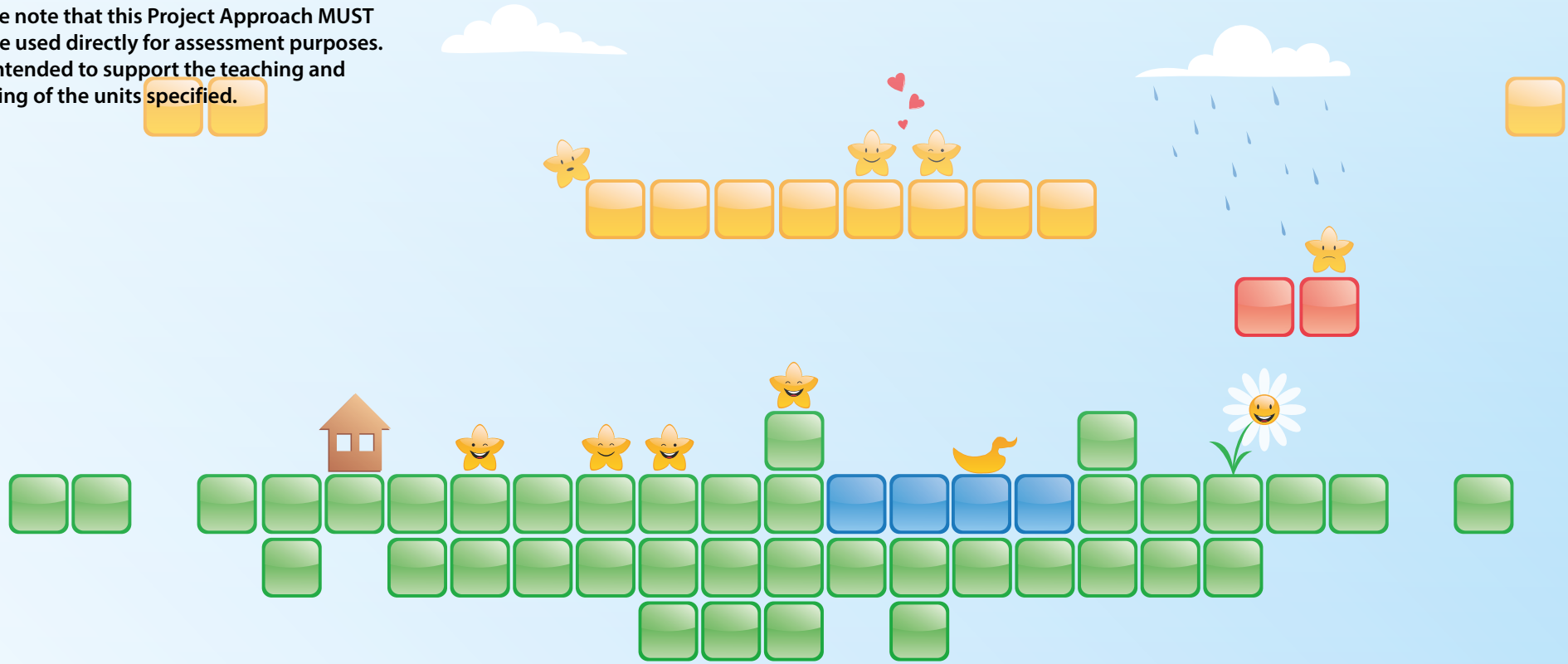
For the purpose of this guide, the intention is for learners to undertake a product investigation, using appropriate project methodology pertinent to the design and creation of a prototype with a client's needs in mind. Learners will understand fundamental web and game principals required for developing application prototypes on a web and gaming platform. Learners will understand the fundamentals of how the client's needs during the information gathering stage impacts the prototype build across these platforms. The investigation will be in context to a web solution that embeds an e-commerce platform to promote game creators work. Learners might produce games that could be sold on platforms, such as Steam.

The project consists of six modules, each of which has a number of activities that learners can carry out individually or in learner groups. Many of the activities will require individuals or learner groups to share their results with the group as a whole. Many of the activities require writing of procedures or scripts. It is not intended that these procedures and scripts be in accurate detail and so, these procedures and scripts are referred to as 'in outline'. Learners will provide any necessary detail in their own individual evidence during final assessment.

When delivering any qualification it is always useful to be able to look at the full range of units selected and consider how they are or could be linked together – a holistic approach.

A holistic approach will provide you with a structured plan to teach the learners how a range of topics work together across a number of units, providing them with some understanding of how skills and knowledge link together in a working environment.

Please note that this Project Approach MUST not be used directly for assessment purposes. It is intended to support the teaching and learning of the units specified.



THIS PROJECT APPROACH ENABLES THE DELIVERY AND FACILITATION OF LEARNING OF THE FOLLOWING UNITS:

Unit		LO	
Unit 6	Application design	LO1	Understand how applications are designed
		LO2	Be able to investigate potential solutions for application developments
		LO3	Be able to generate designs for application solutions
		LO4	Be able to present application solutions to meet client and user requirements
Unit 15	Games design and prototyping	LO1	Understand the principles of game design and prototyping
		LO2	Be able to develop game concepts
		LO3	Be able to develop game prototypes
		LO4	Be able to present and evaluate game concepts
Unit 21	Web design and prototyping	LO1	Understand the fundamentals of web design
		LO2	Be able to plan the development of an interactive website for an identified client
		LO3	Be able to create prototype websites for an identified client
		LO4	Be able to present the interactive website concept to an identified client

The intention is that the learners will be taught a range of knowledge and skills within each of the units and then carry out relevant review activities at various stages. Each of the review activities (once successfully completed by the learner) will provide all the required underpinning knowledge for their final assessment.

The practice review activities within the modules must not be used for final assessment purposes of Cambridge Technicals in IT Level 3.

Model assignments for each of the mandatory centre-assessed units (Units 4, 5, 6, 7 and 8) for Cambridge Technicals in IT Level 3 units or can be found at https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

It is assumed that the learners will be given the opportunity to carry out activities that will enable them to practice the skills they have learned within each module prior to being given final assessment activities.

When considering a holistic approach to delivery and learning it is important to consider the overall objectives. In this guide the objectives are to:

- Deliver three units of Cambridge Technicals in IT Level 3.
- Structure a programme of learning and reviews which is exciting and engaging for learners.
- Provide learners with an overview of how the knowledge and skills gained in one unit, support the knowledge and skills used within other units.
- Provide the learners with an opportunity to consider how they would use their social and communication skills holistically within the working environment.

ABOUT THE MODULES AND ACTIVITIES

The guide is divided into six modules which may be sub-divided or combined according to the teaching time available.

The tables below show where each of the modules in this project provides delivery approaches and learning opportunities to ensure a thorough review of skills and understanding, prior to final assessment and evidencing by the learner.

Please note that should assessment be presented in a similar holistic way, learners must be able to present clearly mapped evidence for each of the centre-assessed units (Unit 6, 15 and 21).

BY UNIT/LEARNING OUTCOME (LO)

	LO1	LO2	LO3	LO4
Unit 6	Module 1 Activity 1, 2, 3, 4, 5, 6	Module 2 Activity 4, 5 Module 3 Activity 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 Module 4 Activity 1	Module 4 Activity 1, 2, 3, 4, 5	Module 6 Activity 1, 2, 3, 4, 5
Unit 15	Module 2 Activity 1, 2, 3, 4, 5	Module 4 Activity 1, 3, 4, 5	Module 5 Activity 1, 4	Module 6 Activity 1, 2, 3, 4, 5, 6
Unit 21	Module 3 Activity 7, 8, 9, 10, 11	Module 3 Activity 1, 2, 3, 4, 5, 6, 7, 8, 11 Module 4 Activity 1, 2	Module 5 Activity 2, 3, 4	Module 6 Activity 1, 2, 3, 4, 5, 6

BY MODULE

	Unit	LO
Module 1	Unit 6	LO1 Activity 1, 2, 3, 4, 5, 6
Module 2	Unit 6	LO2 Activity 4, 5
	Unit 15	LO1 Activity 1, 2, 3, 4, 5
Module 3	Unit 6	LO2 Activity 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
	Unit 21	LO1 Activity 7, 8, 9,10, 11 LO2 Activity 1, 2, 3, 4, 5, 6, 7, 8, 11
Module 4	Unit 6	LO2 Activity 1 LO3 Activity 1, 2, 3, 4, 5
	Unit 15	LO2 Activity 1, 3, 4, 5, 6
	Unit 21	LO2 Activity 1, 2
Module 5	Unit 15	LO3 Activity 1, 4
	Unit 21	LO3 Activity 2, 3, 4
Module 6	Unit 6	LO4 Activity 1, 2, 3, 4, 5
	Unit 15	LO4 Activity 1, 2, 3, 4, 5, 6
	Unit 21	LO4 Activity 1, 2, 3, 4, 5

ASSESSMENT OF UNITS

This project provides opportunities to produce additional and separate evidence to meet the assessment requirements of Units 6, 15 and 21.

This is summarised in the table below which indicates how each Module and Activity provides an opportunity for additional and separate evidence for each unit. Completion of the modules does not guarantee all criteria have been met; this is entirely dependent on the quality of the evidence produced.

This Project Approach should be read in conjunction with the published grading criteria in the unit documents.

Unit No	**Unit title**	**How are they assessed?**
Unit 6	Application design	Internal = Centre assessed and moderated by OCR
Unit 15	Games design and prototyping	Internal = Centre assessed and moderated by OCR
Unit 21	Web design and prototyping	Internal = Centre assessed and moderated by OCR

THE PROJECT BRIEF: eCOMMERCE GAME PLATFORM

The learner version of the Project Brief is available from https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/planning-and-teaching/#level-3

For this project, you have been asked to analyse aspects and impacts of developing applications, in context of developing a website encouraging game creation. You will work towards developing an application to utilise key learning when developing a web and game prototype that meets a client's need.

You will use appropriate models in context to application development to:

- Investigate application development models.
- Investigate appropriate game design principles.
- Investigate impact of client needs within application development.
- Investigate impact of web components in web development.
- Design, build and test a web prototype suitable for a gaming audience.
- Design, build and test a game prototype suitable for a gaming audience.
- Evaluate appropriate of prototypes in relation to clients' needs.

You will benefit from collaborating within a team for the investigation tasks principles and components pertinent to the development of applications (with evidence of the contribution of team members). This is so that you can successfully gain the wider knowledge, understanding and skills required to later complete the assignment tasks that support the Application Developer pathway.

The Application Developer pathway introduces the design, creation and testing skills that are fundamental to the creation of a prototype. These must suit user's needs which can only be successful when the users are involved in the creation of a prototype. The product must have a purpose that can be measured against success criteria.

With the wide access to open source software, you can access a range of platforms to create applications that can be published and viewed on a range of devices. The purpose of the project is to create a web prototype that focuses on one of the fastest growing application sector, gaming.

This work can be undertaken as an individual or within a team. If working within a team learners are expected to contribute to each of the areas (and be able to evidence this contribution) in order to gain the experience and knowledge required to successfully complete the Cambridge Technicals in IT Level 3 (Application Developer Pathway) units.

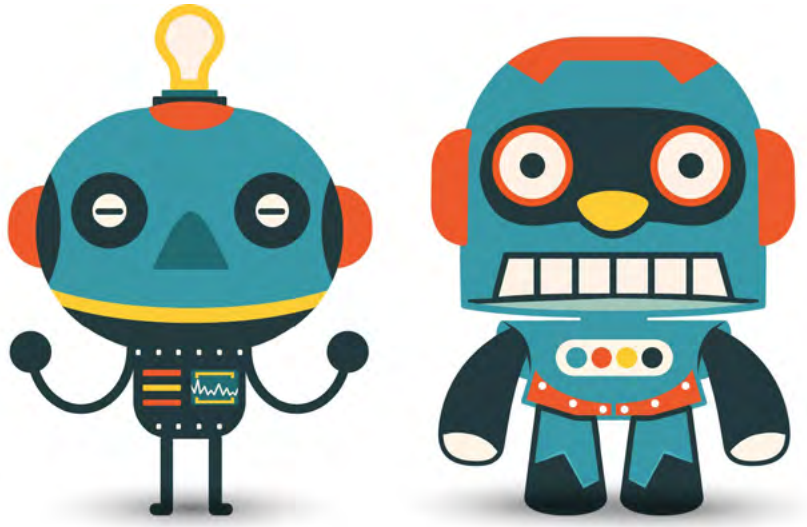
As part of this project, you could work towards the creation of a game that could be entered into The YGD (Young Game Designer) BAFTA. See http://ygd.bafta.org/competition for more details.

You may wish to investigate websites that could encourage the sale of games, such as Steam. See http://store.steampowered.com/ for more details.

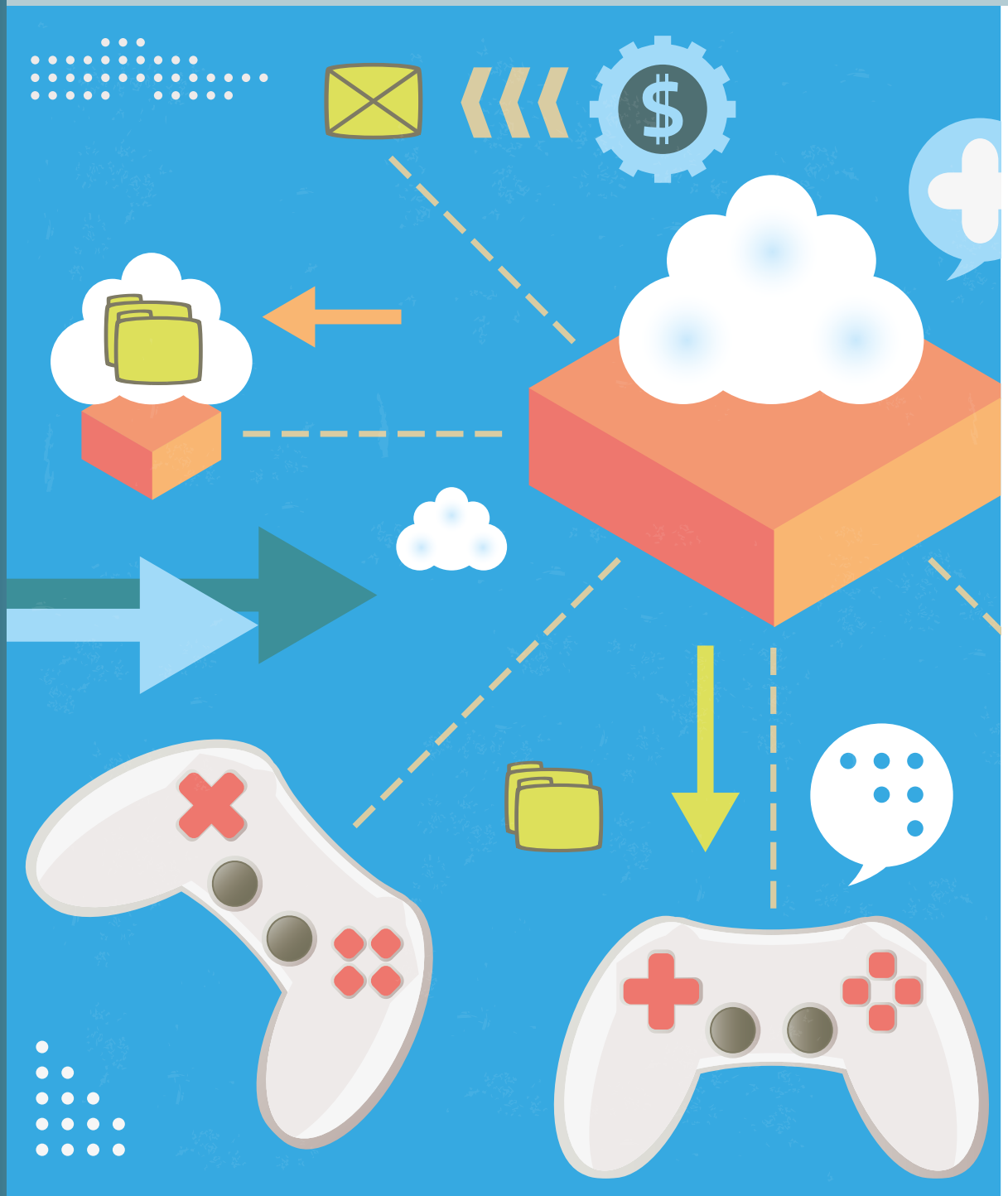
The outputs from this project could support a competition entry to YGD BAFTA or the development of games to be distributed on app stores, such as Steam. You would gain insightful skills to develop these games, including the production of a functional specification that covers a review on how the client's needs could be met, using a range of design techniques that support the build of the web and game prototypes. This would include client user requirements, programming techniques and presenting design ideas to stakeholders, which will be encouraged as group work activities to further enhance your verbal communication skills. You will be able to evaluate how the application testing is pertinent to how the client's needs have been met.

Within the activities you will complete within the six Modules, you will have the opportunity to do extended research in relation to the topics to ensure a deeper understanding of the topic in question. These will be highlighted as extension activities.

This work can be undertaken as an individual or within a team. If working within a team learners are expected to contribute to each of the areas (and be able to evidence this contribution) in order to gain the experience and knowledge required to successfully complete the Cambridge Technicals in IT Level 3 (Application Developer Pathway) units.



MODULE 1



Link to qualification https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery begins with Unit 6 Application design (LO1).

Before learners can understand the process for making a game, it is important that they understand how the application development models are used to create prototypes, in this instance a game, or it could be applied to any other prototype, for instance, web or mobile devices. Learners need to:

- Understand what is required when planning the project to create the game prototype.
- Understand the most suitable application development model to be used for application prototyping.

Contained within the following assessment criteria/units/LOs:

Learning Outcome	LO number	Unit number
Understand how applications are designed	LO1	Unit 6

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.

PRACTICE REVIEW ACTIVITIES FOR MODULE 1

ACTIVITY 1

Learners could independently investigate how the stakeholders would influence the decisions that are made when creating the game prototype. Learners could use the following link to identify what would need to be consider WHEN retrieving the relevant information that would impact the creation of the requirement phase of the application development model: https://en.wikipedia.org/wiki/Requirements_analysis.

Learners could produce a presentation that could be discussed with the group with tutor feedback on what information would be relevant to the game prototype, with the client's consideration in mind.

ACTIVITY 2

Learners could investigate the topics that would need to be covered in relation to the game prototype such as a requirements analysis and design document. This could be a group presentation where learners present the topical areas of the project specification (once defined) with an understanding of the documentation required relating to the game prototype (in terms of what would be included in the topic). Relevant searches from the groups could provide assistance on what is to be included in the design phase of the prototype.

Topics could include: Purpose of the prototype, Success Measures, Design Plan, Interactive Mapping Guide, etc.

The tutor could also retrieve a range of functional specifications from organisations (a range of prototype creations) for learners to gauge what information is relevant to them to include in their prototype (that is specific for the production of a game prototype).

The tutor could feedback on the relevance of information to produce a plan for the group to look into for best practice when completing a functional specification.

ACTIVITY 3

Learners could investigate in groups the differences between types of testing. The aim of this activity is to differentiate between testing done by the prototype creator and that of the user and client. For instance the creator would 'test as they go' and the summative testing is the comprehensive testing that includes user and client involvement. Questions that could be posed to the learner to investigate as a report are as followed:

- Why is it important to test the prototype whilst building?
- What is the difference between summative or iterative techniques and approaches and formative testing?
- Which testing phase would be more aligned for the creator? Why?
- What phase would the user/client be involved prior to signing off the prototype, as complete?
- How should testing be recorded?

ACTIVITY 4

Learners could investigate as a group the differences between the deployment and maintenance phase of a typical application development model. This could be presented or summarised as a mind map of characteristics of each phase and how the client would influence these phases of the application development model.

ACTIVITY 5

Within groups learners could investigate a range of different application development models that are available within prototype creation. A group could consist of three members researching into when each application model was first introduced into project development, the number of phases per application development model and how much interaction the client has with each phase.

The models that could be researched may include: Waterfall Model, Spiral Model, Iterative Model and Prototype Model and consider the new agile and rapid development approaches.

ACTIVITY 6

As a group discussion learners could discuss which application development model is most pertinent to the creation of the game prototype project in general and in different contexts.

The tutor could note all responses as a handout to provide learners to formulate a response to the intended learning outcome.

MODULE 2

Link to qualification https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery continues with Unit 6 Application design (LO2) and Unit 15 Game design prototyping (LO1).

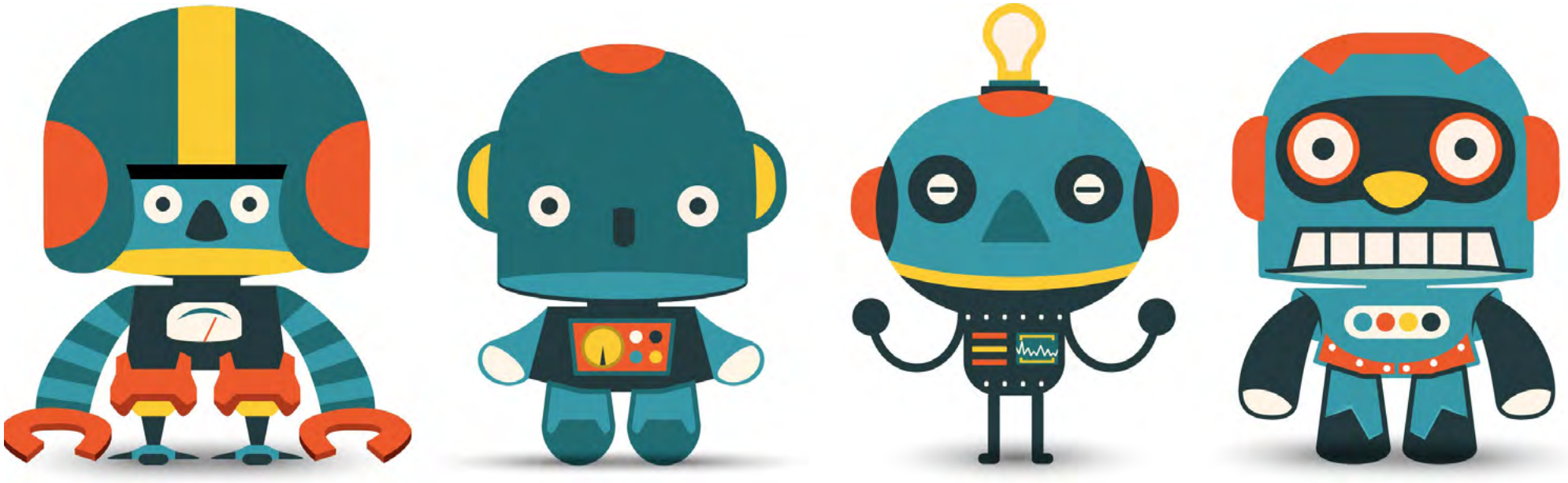
Before learners can understand the process for creating a functional specification for the game prototype, the learner needs to understand what principles can be considered in the game itself, such as goal of the game, what the character looks like (sprite), etc.. This module identifies these principles along with the influence this has on the prototype. Therefore the aims of the module are to:

- Understand principles that have been considered in a range of existing games that are available on GameMaker (available on the following website: http://www.yoyogames.com/showcase
- Understand how these principles can be used when designing the Game prototype.
- Differentiate between a non-working and working game prototype.
- Identify a range of stakeholders and what their impact on the game prototype may be.
- Understand the benefits of building a prototype.

Contained within the following assessment criteria/units/LOs:

Learning Outcome	LO number	Unit number
Understand the principles of game design and prototyping	LO1	Unit 15
Be able to investigate potential solutions for application developments	LO2	Unit 6

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.



PRACTICE REVIEW ACTIVITIES FOR MODULE 2

ACTIVITY 1

Within groups, the tutor could direct learners to compare two existing games available on the Gamer Maker (or similar) website: http://www.yoyogames.com/showcase.

The tutor could discuss with the learners a range of design principles and games via the GameMaker (or similar) website (pre-selected for each group) and the learners should compare the games against these principles (available in the teaching content) and explain which game is the most successful for the specific principle.

Learners could present their findings on to the group with appropriate notations and imagery to support their decisions.

ACTIVITY 2

Following on from the previous activity. The tutor could direct learners to identify the principles that are relevant for the game they could create an identified game competition (such as http://ygd.bafta.org/competition) and why. The tutor could direct the learners to pose these as success criteria that could relate to the relevant phases of the application development model.

Extension Activity

For the learners that advance through this activity, they could be asked to identify at what stage(s) of testing (formative or summative) this may occur with reasoning and justifications.

ACTIVITY 3

Part One:

Learners could be given a scenario where they are presenting a game prototype for a set purpose (directed from the tutor). They could be asked to discuss the benefits and drawbacks of using a visual representation of a game (that poses ideas of what the game will look like – a non-working example) with a proof of concept of the game (a working example).

Extension Activity

Learners could be asked to identify through a discussion how the presenter could clarify the following prototype principles in the game prototype on both scenarios: Skill level required to play the game, how the user interacts with the game interface (how will they know how to progress the level) and how the game purpose (or goal) could be achieved?

Part Two:

It is important the learner understand that a non-working model is still relevant to the prototype creation. This activity can only be completed once the user has completed Activity 3, the tutor could direct the learners to ascertain at what part of the application development model a non-working example and working example would be most appropriate.

The outcome of this activity is to appreciate that both are suitable in the game production, in the relevant application development model phase. This could be a written exercise or visual document where the learner states how this can be presented in the phase model.

ACTIVITY 4

The learners should then gather the full user requirements to enable them to identify potential solutions from which they can carry out feasibility studies.

The tutor should direct learners to work in groups. The tutor could inform the user that the client would like them to present the working example of the game idea that they have researched above. The group of learners could be asked to identify via a presentation the benefits of having a working prototype for this client presentation and the proposed solution for the application.

Once all groups have presented their ideas, the groups could document the benefits of having a working prototype.

ACTIVITY 5

Learners could be asked to identify other stakeholders that might influence the production of the game prototype. This could be a group discussion where the tutor documents the stakeholders on the board.

As groups learners could be asked to define how the selected stakeholder could influence the game prototype.

MODULE 3

Link to qualification https://www.ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery progresses with Unit 6 Application design (LO2) and Unit 21 Web design and prototyping (LO1, LO2).

Before the learner is able to actively design a website structure that is appropriate for the e-Commerce web platform, it may be important to look at some of the factors that could influence the design of the site. This module aims to highlight the criteria relating to the unit learning outcome that could impact the web design.

Learners will gain an appreciation to the factors that impact how the web prototype will be seen on the public domain. The learner will form an appreciation of web development applications and the security factors involved in the creation of the web prototype of the gaming platform. The information will be achieved via a range of activities that showcase previous cyber security attacks and the prevention methods available to the learner to prevent these from happening on their web platform.

The aims of the module are as followed:

- To identify a range of tools that could be used to support the user requirements of the website prototype design.
- To understand how the web user types influence the web prototype design.
- To identify web standards that could be applied to web prototype designs.
- To understand how resources can influence what the web prototype will develop.
- Understand the importance of domain names and extensions used by an organisation.
- Identify an example of open and closed (proprietary) web development applications.
- Understand how cyber security issues can impact an organisation.
- Identify a range of tools to reduce the risk of security breaches on a web prototype.

Learning Outcome	LO number	Unit number
Be able to investigate potential solutions for application development	LO2	Unit 6
Understand the fundamentals of web design	LO1	Unit 21
Be able to plan the development of an interactive website for an identified client	LO2	Unit 21

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.

PRACTICE REVIEW ACTIVITIES FOR MODULE 3

ACTIVITY 1

Learners could be asked to identify a range of methods that could be used to investigate potential solutions for the game and website. This could be conducted as a group discussion with the tutor making notes on the methods identified during the discussion.

Extension Activity

As an extension activity the learners could be asked to categorise the methods of research to identify the user requirements into primary and secondary sources of information. This can be followed with a discussion on the benefits and drawbacks the appropriate method could have when validating what the prototype could contain.

ACTIVITY 2

Prior to a learner being able to design a functional website, it is important to understand the needs of the clients, identified as 'analysing needs' (Unit 21 2.1). Following on from Activity 1 the learners could be grouped into teams to discuss how the different stakeholders could be involved (following on from Module 2) to retrieve information relevant to the prototype build, in relation to the actual build of the website to host the e-Commerce gaming platform.

The tutor may want to give an example that could be a client stakeholder wanting a home page that directs users to create an account on the platform to use as marketing information. The tutor could give an example of a home page design and highlight the functionality on the page and which user may request this information. The groups may want to consider other pages (that are unique to each group) and discuss how the requirements are being met.

The learners could present their findings to the group as a list of user requirements that could be used for a gaming platform that could host the game they will build as a prototype and to identify the criteria for the fundamentals of the website.

ACTIVITY 3

It is important for the learner to understand how the users would interact with the website and this can be achieved by identifying how each user type would interact with the site and how they can be catered for within the plan of the interactive website (Unit 21 2.1, Unit 6 2.2). There are a range of different web users that should be discriminated in the prototype design which should be communicated to the learners. As a group discussion you could discuss the difference between novice, naïve, occasional and technical web users and those with special requirements. This could be demonstrated on the BBC website: http://www.bbc.co.uk/accessibility/ where they differentiate for a range of users.

Once this has been discussed, then the learners in the group, could use the following website: https://www.w3.org/standards/webdesign/accessibility to identify the tools that could be utilised in their web prototype to accommodate those users with special requirements. This could be presented a group discussion that could source examples from the BBC website.

ACTIVITY 4

Within Unit 21 learners should be encouraged to enhance interactive features through programming. This task focuses on how this can be achieved (Unit 21 3.2). On the game prototype website the user could use a form to create an account which when the user selects submits, the form is sent to the creator to create the account. With this in mind, what accessibility features could be applied to the form to make this easier for all user types. The tutor could give examples of validation messages on blank fields, help buttons embedding coded messages. This activity could be further enhanced with a range of forms concepts, such as: https://www.w3.org/WAI/tutorials/forms/

The learners could be encouraged to design a form page for new users to the e-Commerce site, the tutor may need to direct them in the first instance (what information do you want to know about customers) and then the groups can research other form elements that could be applied to the site. The learners could be encouraged to note the accessibility features of the form to ensure all user requirements are met fairly.

Extension Activity

Learners could also discuss what other interactive features of a website (e.g. Video, Animations, Spry Assets) could support accessibility features for those users with special requirements or novice users.

PRACTICE REVIEW ACTIVITIES FOR MODULE 3

ACTIVITY 5

Visualisation diagrams are a good way of presenting what the page would look like, such as the form page on Activity 4. The learner could be encouraged to look at other design methods that could be used to support the functional specification of the game and web prototype. In groups learners could identify a range of other design tools that could be used to showcase the website design (e.g. Mind Mapping, Mood board, navigational flow diagrams, DFD of user interactivity).

The learners could be extended to show an example to showcase how these additional tools could be used to support a number of pages for the e-Commerce website.

Extension Activity

Learners who have advanced in this activity could further extend the form page from Activity 4 to accommodate the ideas from Activity 5 (e.g. font styles, colours, page structure, header, side bar, content, footer, etc.).

ACTIVITY 6

As part of Units 6 and 21 learners should be able to create a range of design ideas that relate to the prototype build. In order for learners to be able to identify the advantages and disadvantages of the proposed system (Unit 6 3.3/4) in the first instance of this activity, the tutor may need to introduce what a human, physical and financial resource are to the learners. The learners can then research what the implication and constraints are for each of the resources that a web designer would need to be aware of, focusing on the internal factors of the organisation.

Extension Activity

Users who have advanced in this activity could be encouraged to look at the difference of building a site using HTML and HTML5 and the impact this could have for those users' access websites on a range of devices. A source of information to assist could be: https://www.youtube.com/watch?v=ybVlWhdedZE, but the learner could source this using relevant search engine facilities.

ACTIVITY 7

The learners could be introduced how to sourcing the availability of web domain names using appropriate sites to source domain names, such as Go Daddy: https://uk.godaddy.com/domains/domain-name-search tutors could get a group of learners to identify a suitable domain name for an e-Commerce website.

As a group discussion afterwards, the tutor could ask the learners the importance of searching for domain names and why an organisation may want to consider purchasing several domain extensions of the domain name.

Extension Activity

As an extended activity, the tutor could ask learners to research why an organisation would re-direct domain name registrations to one domain.

ACTIVITY 8

The tutor could introduce to the learners applications that could be used to web development, which could either be open or closed (aka. proprietary) standards.

The learners could be introduced to a range of resources using appropriate search engines, or specific sites, such as http://www.bbc.co.uk/education/guides/zdn3d2p/revision/3 and https://www.w3.org/standards/ and asked to individually research a range of applications that could be used to develop a website, on open and closed web development applications.

A group discussion could be used afterwards (directed by the tutor to differentiate between the two with examples).

Extension Activity

As an extension, learners could be asked to identify a suitable web development application that could be used to create the e-Commerce website for the game sharing with the tutor using open questions to gain an insight into the learners justification (in relating to page design and control over content on the actual web development application).

PRACTICE REVIEW ACTIVITIES FOR MODULE 3

ACTIVITY 9

With the range of applications that are accessed to create and maintain web sites, it is even more imperative that the creator and users information is protected.

In this activity, learners could investigate a range of cyber security attacks that have happened to UK companies. Information could be sourced from the BBC News https://www.bbc.co.uk/news/topics/cz4pr2gd85qt/cyber-security or The Guardian: https://www.theguardian.com/technology/cybercrime.

The tutor should direct the learners to focus on why the cyber security attack happened to these companies and what relevance the information has in context to the creation of the e-Commerce gaming platform. The information in this activity could be directed by a group room discussion (once the information has been sought from the learners).

Extension Activity

As an extension the learners could order the biggest factors that cause cyber security attacks and rank them from the biggest impacting risk to lowest. This could be directed by the tutor using proprietary applications to organise ideas and share content with the group, such as Padlet: https://padlet.com/.

ACTIVITY 10

As an extension of the previous activity, learners could be directed to the following website that focuses on 10 factors to limit hacking potential to the website. The site address: http://www.creativebloq.com/web-design/website-security-tips-protect-your-site-7122853. Learners could be grouped into teams and given one specific topic on the top 10 list (directed by the tutor).

The learners could carry out research and present their findings in a presentation method suitable for them. The information could be shared with the group, with the focus on how this could be applied to the e-Commerce Gaming platform as a conclusive statement, which could be discussed further with the group.

Extension Activity

As an extension, the tutor could carry a group discussion to see if there are similar prevention methods that could accommodate more than 1 factor on the list with context to how this could potentially be achieved (in theory) on an open and closed standard web development application.

ACTIVITY 11

The tutor could direct learners to have a look at the work they did as part of Module 3 (Activities 9 and 10) and ascertain via a written report what other factors could be involved from a security perspective to add to a potential Gaming platform web prototype.

The tutor may wish to give feedback to the individuals on research and contextual examples that relate to the reasoning of the learners addition to any part of the functional specification.

MODULE 4

Link to qualification https://ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery continues with Unit 6 Application design (LO2, LO3), Unit 15 Games design and prototyping (LO2, LO3), Unit 21 Web design and prototyping (LO2).

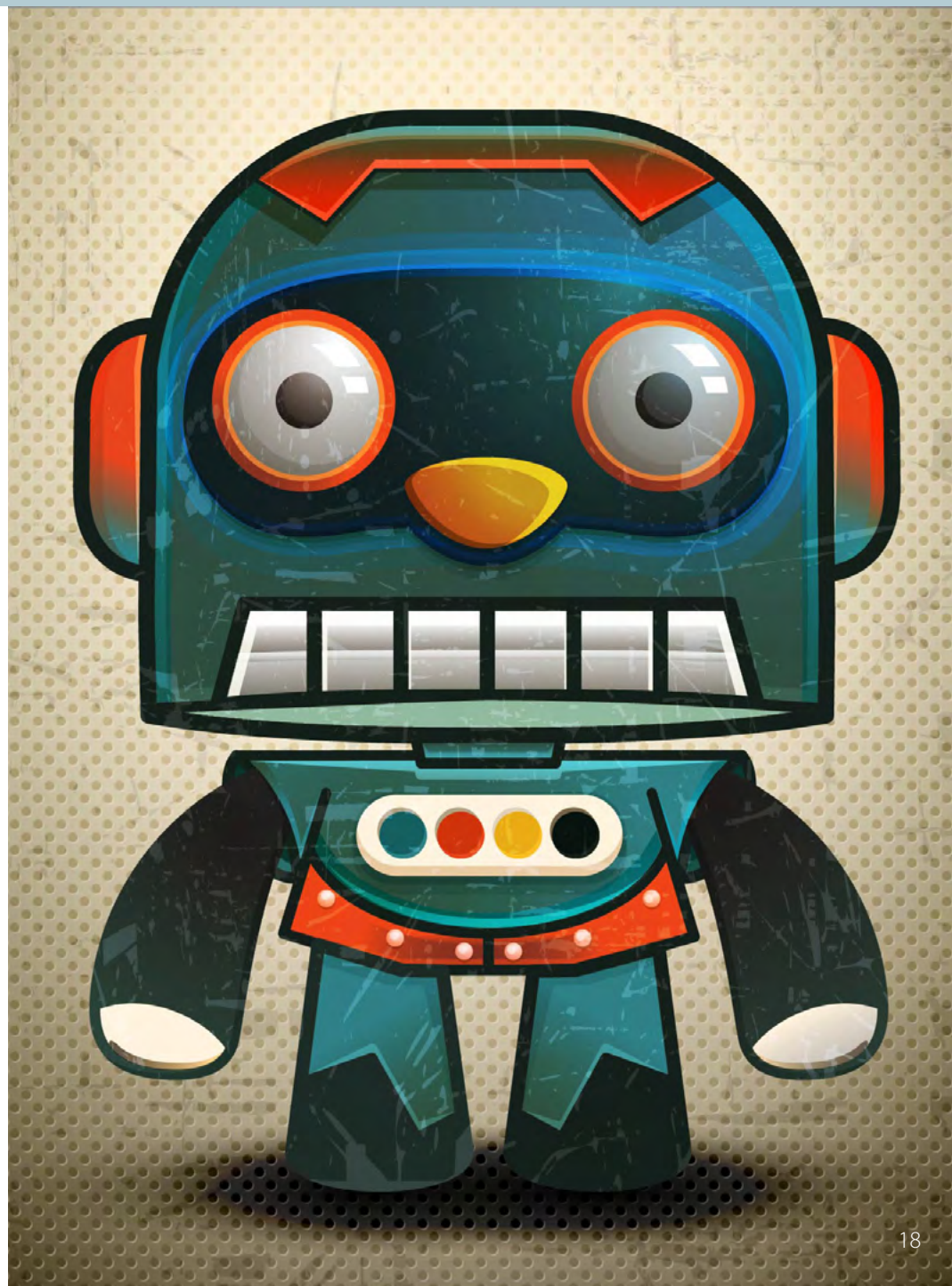
The learner will further advance the knowledge obtained from Module 3, where system diagrams could be created for the e-Commerce website for the gaming platform. The information from this Module will also look at the stakeholders in some detail, focusing on their interaction with the gaming platform with scenarios to look into how the interaction can take place with some focus on character and game concepts that support an e-Commerce website. The outcomes of this Module are:

- To understand how processes are used within the context of an e-Commerce website.
- To identify similarities and presentation of information across a range of the application design.
- To identify a range of benefits and drawbacks to proposed e-Commerce web applications.
- To understand how character concepts support gaming platform web applications.
- Identify how a character concept can interact with other game concepts.

Contained within the following assessment criteria/units/LOs:

Learning Outcome	LO number	Unit number
Be able to investigate potential solutions for application developments	LO2	Unit 6
Be able to generate designs for application solutions	LO3	Unit 6
Be able to develop game concepts	LO2	Unit 15
Be able to develop game prototypes	LO3	Unit 15
Be able to plan the development of an interactive website for an identified client	LO2	Unit 21

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.



PRACTICE REVIEW ACTIVITIES FOR MODULE 4

ACTIVITY 1

It is important for the learner to appreciate that standardisation is important to make sure the process is repeated within the context of an e-commerce platform. The tutor may want to use examples from existing websites, to pose a scenario. An e-Commerce website that could be used as an example is the customer order page within Amazon. The example that could be discussed is what calculations take place on the order page (e.g. quantity multiplied by price, addition of delivery, overall total). Learners could be given time in groups to identify a range of calculations/automation that could take place during the process of a customer placing an order.

As a group discussion the tutor could ask learners if this process would happen to a new customer and an example could be shown to the learners. It is important to note that is process of standardisation is defined as a standard algorithm within the e-Commerce site.

The tutor could then direct the learners to research another form of process/ standard algorithm that could also take place on another e-Commerce website and discuss similarities in the process when referring to the Amazon example.

Extension Activity

The learners could research processes that could take place on the e-Commerce gaming platform website that they could create. The tutor could limit the number of processes to 3 to allow time to justify the purpose of the process.

ACTIVITY 2

Two design standardisations have been covered in Activity 1 and this activity addresses other design standards that may be applicable to the creation of the website. The tutor could show the Amazon customer order confirmation page and identify the standard interface widgets that would appear on the web page for each customer order. The tutor may want to introduce the way the button looks, drop down menus or hyperlinks on the page. The learners could continue this activity selecting further widgets that appear on the order page and sketch the layout highlighting the purpose of the widget.

Extension Activity

Learners could be directed to look at a range of pages within the Amazon page and identify any features that exist on each page layout. Learners could be asked why it would be important for an organisation to have consistency on each web page and how this could be utilised on the e-Commerce gaming platform.

PRACTICE REVIEW ACTIVITIES FOR MODULE 4

ACTIVITY 3

Following on from Activity 1, learners could be directed to look at how game elements used within an existing game allow them to progress throughout the game. Learners could chose a game from the GameMaker Website (available from: http://www.yoyogames.com/ showcase) from previous modules and work out what other instructions have been used within the game element to identify what should be done prior to moving onto the next level (e.g. Is there a scoring mechanism, how does the level get reset, etc.).

Key words could be directed from the teacher covering the game elements and interface design and learners could be asked to prepare a presentation on the strengths and weaknesses of the game and what they will implement in their game concept as a result.

Extension Activity

Learners could be asked to identify whether the game could be justified as a different perspective, either 2D to 3D or vice versa. Justify what changes would need to be made to game to accommodate this perspective.

ACTIVITY 4

The learners could be asked to retrieve the house styles from their website plan and identify the success of an existing character concept for a chosen game. In groups users could pick an iconic game character from a famous console available from: https://en.wikipedia.org/wiki/List_of_Mario_franchise_characters and identify who the characters intended audience would be and justify this with some examples from a chosen game from the group (which could be further enhanced through images of the characters game) and can the character interact with other players on the same game. If so how does the game achieve this?

Extension Activity

Learners could be asked how the character is used on the company's website and what the learner may do to enhance their website prototype with their intended character concept.

ACTIVITY 5

Learners should be able to reflect on what they have learnt in Activity 4 to prepare a character concept. This could either be done by hand or electronically, but the learner should be able to discuss with a small group, how the character is going to support the game elements of their intended game prototype and how the character can evolve throughout a number of levels (for learning it may be advised to limit the learners to 3 levels of progress within the game).

Extension Activity

The learner could create other game elements, such as enemies and how the main character could interact with them on the three levels. Activity 6

Learners should look at the programming techniques they may have used and also what other options they have available to enhance or improve their development.

They should also be encouraged to look at how they intend to test and record their testing for all aspects of their development.

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MODULE 5

Link to qualification https://ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery moves on to Unit 15 Games design prototyping (LO3), Unit 21 Web design and prototyping (LO3).

The learner will further advance the knowledge obtained from Module 4, where their design ideas will help direct how the prototypes are to be built for their e-Commerce website for the gaming platform. The information from this Module will also look at the client requirements that are to be used within the build of their prototypes and understand how application tools within the software applications can be used to achieve the client requirements. The outcomes of this Module are:

- To understand how the client requirements can be achieved throughout the prototype build of the game and website prototype.
- To identify how gaming applications can be used to build the prototype.
- To identify how web applications can be used to build a website.
- To learn how the web and game prototype can become interactive to encourage the user to acquire information from the e-Commerce platform.

Contained within the following assessment criteria/units/LOs:

Learning Outcome	LO number	Unit number
Be able to develop game prototypes	LO3	Unit 15
Be able to create prototype websites for an identified client	LO3	Unit 21

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.

PRACTICE REVIEW ACTIVITIES FOR MODULE 5

ACTIVITY 1

Learners could be directed to an appropriate game development tool to create the first three levels of their game concept, taking into account previous modules, to learn how the game development tool could be utilised to develop into a game concept of at least 3 levels that can captive their audience whilst adhering to the client requirements.

Extension Activity

Learners could be asked to discuss how the client's requirements (with examples in their work) have been taken into account in the game concept production and how users would navigate through the game with ease.

ACTIVITY 2

Learners could be directed to appropriate web development tools to create a range of web pages that have static elements on them to showcase how the colours and stylisation from the game concept from the previous activity have been utilised. The tutor may need to direct the learners of the different methods of adding a CSS style sheet to the HTML pages. There are many resources available to support this through the following sites:

1. Identifying the approach method of adding CSS to a HTML document via the following link - http://matthewjamestaylor.com/blog/adding-css-to-html-with-link-embed-inline-and-import
2. Understanding how this can be achieved through the following link: http://www.w3schools.com/css/css_howto.asp

Extension Activity

Learners could be asked to discuss how the similarities between the game and website prototype have been considered for their user requirement analysis from the previous module.

ACTIVITY 3

Within this activity learners should take the static elements of their website and start implementing interactive elements. Learners could be shown a range of interactive elements from existing e-Commerce websites (such as Amazon) by the tutor and shown how these concepts are used within the responsive website structure (such as activating elements to be seen on a mobile device and a computers visual display). Learners could be split into groups and asked to identify the benefits of having these concepts in their website prototype.

Extension Activity

Learners could be asked to develop 3 of their static elements on any of their web pages to become interactive and justify how this would be more appropriate to achieve their client requirements.

ACTIVITY 4

The e-Commerce website is advertising games to be purchased (like Steam) and learners could be asked how their existing game prototype could be embedded into their web prototype. Learners should be encouraged to discuss how a range of elements can be included together to enhance the e-Commerce site unique selling proposition (this is increasing the number of foot traffic into actual customers).

Extension Activity

Learners could prepare a presentation to the group as a 'Dragons Den' pitch to sell the game character concept and how the character has driven their website prototype in terms of styling and interactive elements.

MODULE 6

Link to qualification https://ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

The delivery concludes with Unit 6 Application design (LO4), Unit 15 Games design prototyping (LO4), Unit 21 Web design and prototyping (LO4).

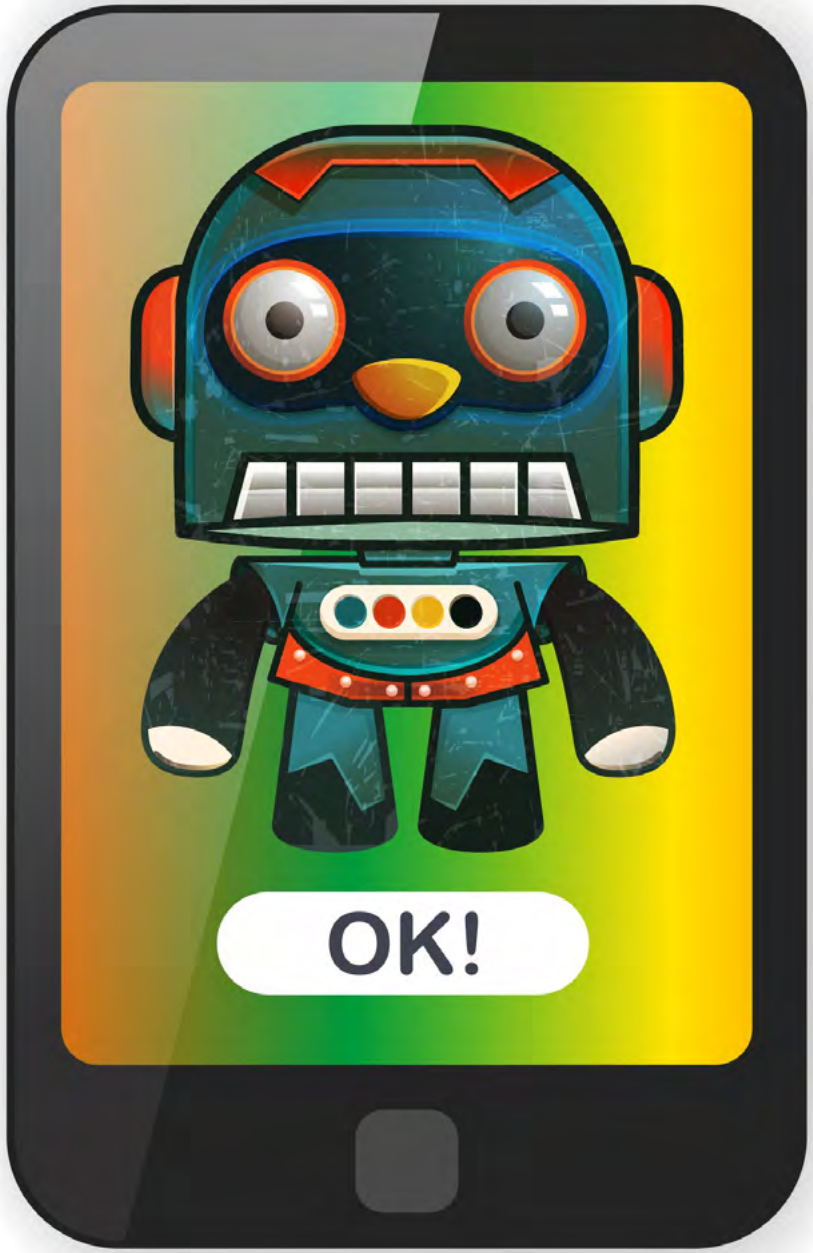
The learner will further advance the knowledge obtained from Module 5, where their prototype builds will be investigated into whether the client requirements have been met. This will be achieved through peer and self-testing, using a range of verbal and non-verbal communication tools to assess the feedback received from the testing part of the application development model. The outcomes of this Module are:

- To identify tools that could be used to assess how feedback is achieved.
- To evaluate the worth of feedback in terms of whether changes to the game or web prototype are necessary.
- To identify what application and functional testing could be used in their game and web prototype.
- To justify how the game prototype can be used for a national campaign – BAFTA Young Game Designer.
- To identify what factors impact the security and maintain of their e-Commerce platform.

Contained within the following assessment criteria/units/LOs:

Learning Outcome	LO number	Unit number
Be able to present application solutions to meet client and user requirements	LO4	Unit 6
Be able to present and evaluate game concepts	LO4	Unit 15
Be able to present the interactive website concept to an identified client	LO4	Unit 21

During the delivery of the units, the learners should carry out a range of activities to demonstrate and check their knowledge and understanding. They should also undertake review activities as they work through the programme of learning.



PRACTICE REVIEW ACTIVITIES FOR MODULE 6

ACTIVITY 1

Learners should be encouraged to identify ways in which feedback determines whether they have met their client's requirements. The client requirements could relate to the game and website prototype. They could be directed to create a mind map, using web tools such as Bubbls.us to identify the type of testing that could take place, with sub nodes relating to which stakeholders could help to obtain the feedback. The aim of this activity is to gain confidence in getting the right feedback at the right time to meet the client's requirements.

Extension Activity

Learners could be encouraged to discuss the benefits of using online feedback tools against those taking place face to face and then identify how these tools could be used in their research.

ACTIVITY 2

Once the research has been conducted in Activity 1 the learner could prepare a presentation stating 'what went well' and 'could be improved…' to meet the client requirements. Examples from their website and game prototype could be used to show consistency in styling across both prototypes to support client requirements.

Extension Activity

Learners could discuss whether the 'could be improved…' elements from their primary research are actually valid in working towards amendments to further clarify how the user requirements could be met.

ACTIVITY 3

Learners could be encouraged to discuss why functionality and interactive testing is an integral part to any testing phase of the application development model. In groups, learners could discuss some of the testing that could take place on the website and game element to prove its effectiveness. They could create a testing schedule of testing aims and expected outcomes from the testing to drive their expectations to what is working and needs improvement. Once the testing schedule is prepared the learners could complete testing of the website and identify if changes are required to further improve the functionality of the website.

Extension Activity

Learners could prepare a 'test' to identify how information is obtained in the website from a range of users and asking them to rate their experience in retrieving the information (e.g. the number of clicks needed to retrieve an answer).

ACTIVITY 4

In Activity 5 learners will be working towards a hand over presentation of their prototype. Before this can be done, learners could be encouraged to create a handover document to compliment this pitch. The hand over document could outline advice from the learner on what should take place within the first 12 months after the handover date. This could include guidance that relates to legislation and update content management systems. The tutor could direct the learner to have a look at different policies associated with the learning institution (links available to add context to the definition:

1. AUP – Acceptable User Policy: https://en.wikipedia.org/wiki/Acceptable_use_policy
2. DPA – Data Protection Act 2018: https://en.wikipedia.org/wiki/Data_Protection_Act_2018
3. CMA – Computer Misuse Act 1990: https://en.wikipedia.org/wiki/Computer_Misuse_Act_1990
4. FOI - Freedom of Information Act 2000: https://en.wikipedia.org/wiki/Freedom_of_information_in_the_United_Kingdom

In groups learners could assess the information that the e-Commerce website would need to consider in their policies as well as guidance on what mechanisms could be in place to protect information against these legislation. In terms of content management the learners could be directed to common e-Commerce websites and justify when it is appropriate for changes to be made to products and services online.

Extension Activity

Learners could produce a learning schedule for all staff in the first 3 months of implementation and justify what training would need to take place in order to be compliant with legislation. How will the staff be trained internally and how will this be monitored? The tutor could show training schedules within the educational institution (within reason) to identify what training can be supported.

PRACTICE REVIEW ACTIVITIES FOR MODULE 6

ACTIVITY 5

To support the hand over document from Activity 4, the learners could prepare a hand-over presentation that pitches the worthiness of the web and game e-Commerce prototype. The information could be presented to the group/client to showcase how the client's requirements have been met from the game and website prototype. The tutor may want to encourage what information would be pertinent to the process and advise that the actual prototype should be visible at the time of presenting.

Once the presentation is complete, the tutor could provide feedback on improvements to the site and gauge how the learner could implement this within their prototypes and whether the learner believes the improvement to be valid. This exercise could be carried out as formative feedback.

Extension Activity

The learner could take time to think about feedback received from their presentation and identify 3 further functional or interactive improvements to the prototype. They could justify how the actual change could further enhance the interactivity of the e-Commerce website. Examples of how Google achieve this can be defined through:

1. The use of Web Browser SEO (search engine optimisation) tools. Further information available through the following link https://novi.digital/services/seo-management/) and how to create them via Google on the following link: http://www.hildamateiu.com/docs/search-engine-optimization-starter-guide.pdf
2. Google Analytic tools to identify the foot-flow traffic to certain parts of the website to optimise marketing potential – in line with the social media for business unit). Further information on this Google feature available on the following link: https://www.google.com/analytics/analytics/features/

ACTIVITY 6

Learners could be asked discuss whether their game idea could be entered into the BAFTA Young Game Designers, using the following guidance from the website to identify if their game concept could be entered (http://ygd.bafta.org/sites/default/files/uploads/ygd16applicationTips04.pdf). Using the headings from 'What makes a winning BAFTA YGD Application?' learners could justify in a presentation to why their game concept could be a winner, via a pitch to the group.

Extension Activity

Learners could engage feedback from their group and identify how this could be implemented into an application via the following website: http://ygd.bafta.org/sites/default/files/uploads/ygd16applicationTips04.pdf

OTHER RESOURCES

Below is a list of resources available from the OCR website which can support the delivery of this project.

http://ocr.org.uk/qualifications/cambridge-technicals/information-technology/#level-3

Delivery Guides

Delivery Guides contains suggestions for activities for lessons. There is a Delivery Guide for each unit, structured by learning outcome so that you can see how each activity helps learners cover the unit. We've also included links to other resources you might find useful.

Resources Links

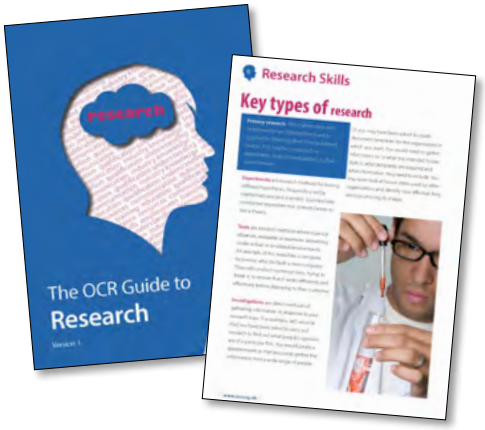
There are a number of Resources Links for some of the units. Resources Links provide a range of other resources you might find useful – videos, data sets and other online content.

Lesson Elements

There are a number of Lesson Elements for some of the units. Each Lesson Element contains fully worked-up activities with tutor instructions and answers along with learner task sheets.

Skills Guides

We have produced a range of skills guides covering a variety of topics, including research, communication skills, managing projects, problem solving.



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