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# OCR LEVEL 3 CAMBRIDGE TECHNICALS IN IT

LEVEL 3

## A PROJECT APPROACH TO DELIVERY

VERSION 1





## INTRODUCTION

The purpose of this guide is to give you an overview of how you could holistically deliver a range of units from the Cambridge Technicals in IT Level 3. When delivering any qualification it is always useful to be able to look at the variety of units and consider how they are or could be linked together – an holistic approach.

An 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 could link together in a working environment.

This guide looks at the delivery and facilitation for learning of the following units:

- Unit 09 – Project Planning with IT
- Unit 10 – Computer Games Development
- Unit 16 – 2D Animation Production
- Unit 32 – Computer Game Design

In this example, the objective is for learners to produce an enhanced computer game. This will be possible through planned delivery of the units using animation to improve their computer game.

[Project Libre](#) is a free project management software tool which has been used to 'map' the programme of learning to assist in the delivery with flexible timings, order for delivery and outcomes. However, any project software may be used or you may choose to use your own collection of resources. The programme of learning, on which the Project Libre example is based, is summarised in the individual modules below.

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 reviews (once successfully completed by the learner) will provide the foundation knowledge for their final assessment. The practice review activities within the modules **must not** be used for final assessment purposes.

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 four units towards the overall Level 3 qualification from the Cambridge Technicals in IT
- structure a programme of learning and reviews which are exciting and engaging for the learners encouraging them to undertake the necessary independent personal research and study expected of a Level 3 learner
- provide the learners with an overview of how the knowledge and skills gained in one unit, supports the knowledge and skills used within other units
- provides the learners with an opportunity to consider how they would use their IT skills holistically within the working environment

As stated previously, the end result for the learners will be a functioning computer game that they have designed and created. If the game were to have a web-based focus, this would enable the inclusion of web units within the holistic programme of learning. For the purpose of this guide, the intention is for the learners to manage the design and creation of a computer game that can be played on a personal computer.

Please see the Teaching Content section for the identified Learning Outcomes (LO), found within the individual units ([www.ocr.org.uk](http://www.ocr.org.uk)).





This guide is divided into nine modules which may be sub-divided or combined according to teaching time available.

The tables below show where each module 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 final assessment may be presented in a similar holistic way. Learners must be able to evidence achievement for each of these four units independently.

#### By Unit/Learning Outcome (LO)

|                | LO1                  | LO2                              | LO3                              | LO4      |
|----------------|----------------------|----------------------------------|----------------------------------|----------|
| <b>Unit 09</b> | Module 3             | Module 3<br>Module 4<br>Module 5 | Module 6                         | Module 9 |
| <b>Unit 10</b> | Module 1             | Module 1<br>Module 8             | Module 4<br>Module 5<br>Module 7 | Module 8 |
| <b>Unit 16</b> | Module 2             | Module 4<br>Module 5             | Module 7                         | Module 8 |
| <b>Unit 32</b> | Module 1<br>Module 4 | Module 4                         | Module 5                         | Module 6 |

#### By Module

|                   |         |     |
|-------------------|---------|-----|
| <b>Module 1</b>   | Unit 10 | LO1 |
|                   |         | LO2 |
| <b>Module 2</b>   | Unit 32 | LO1 |
|                   |         | LO2 |
| <b>Module 3</b>   | Unit 16 | LO1 |
|                   |         | LO2 |
| <b>Module 4</b>   | Unit 09 | LO1 |
|                   |         | LO2 |
| <b>Module 5</b>   | Unit 10 | LO1 |
|                   |         | LO2 |
| <b>Module 6</b>   | Unit 16 | LO1 |
|                   |         | LO2 |
| <b>Module 7</b>   | Unit 32 | LO1 |
|                   |         | LO2 |
| <b>Module 8</b>   | Unit 09 | LO2 |
|                   |         | LO3 |
| <b>Module 9</b>   | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 10</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 11</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 12</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 13</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 14</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 15</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 16</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 17</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 18</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 19</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 20</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 21</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 22</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 23</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 24</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 25</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 26</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 27</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 28</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 29</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 30</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 31</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 32</b>  | Unit 09 | LO3 |
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| <b>Module 33</b>  | Unit 10 | LO3 |
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| <b>Module 34</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 35</b>  | Unit 32 | LO3 |
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| <b>Module 36</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 37</b>  | Unit 10 | LO3 |
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| <b>Module 38</b>  | Unit 16 | LO3 |
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| <b>Module 39</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 40</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 41</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 42</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 43</b>  | Unit 32 | LO3 |
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| <b>Module 44</b>  | Unit 09 | LO3 |
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| <b>Module 45</b>  | Unit 10 | LO3 |
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| <b>Module 46</b>  | Unit 16 | LO3 |
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| <b>Module 47</b>  | Unit 32 | LO3 |
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| <b>Module 48</b>  | Unit 09 | LO3 |
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| <b>Module 49</b>  | Unit 10 | LO3 |
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| <b>Module 50</b>  | Unit 16 | LO3 |
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| <b>Module 51</b>  | Unit 32 | LO3 |
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| <b>Module 52</b>  | Unit 09 | LO3 |
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| <b>Module 53</b>  | Unit 10 | LO3 |
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| <b>Module 54</b>  | Unit 16 | LO3 |
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| <b>Module 55</b>  | Unit 32 | LO3 |
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| <b>Module 56</b>  | Unit 09 | LO3 |
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| <b>Module 57</b>  | Unit 10 | LO3 |
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| <b>Module 58</b>  | Unit 16 | LO3 |
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| <b>Module 59</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 60</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 61</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 62</b>  | Unit 16 | LO3 |
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| <b>Module 63</b>  | Unit 32 | LO3 |
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| <b>Module 64</b>  | Unit 09 | LO3 |
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| <b>Module 65</b>  | Unit 10 | LO3 |
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| <b>Module 66</b>  | Unit 16 | LO3 |
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| <b>Module 67</b>  | Unit 32 | LO3 |
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| <b>Module 68</b>  | Unit 09 | LO3 |
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| <b>Module 69</b>  | Unit 10 | LO3 |
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| <b>Module 70</b>  | Unit 16 | LO3 |
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| <b>Module 71</b>  | Unit 32 | LO3 |
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| <b>Module 72</b>  | Unit 09 | LO3 |
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| <b>Module 73</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 74</b>  | Unit 16 | LO3 |
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| <b>Module 75</b>  | Unit 32 | LO3 |
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| <b>Module 76</b>  | Unit 09 | LO3 |
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| <b>Module 77</b>  | Unit 10 | LO3 |
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| <b>Module 78</b>  | Unit 16 | LO3 |
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| <b>Module 79</b>  | Unit 32 | LO3 |
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| <b>Module 80</b>  | Unit 09 | LO3 |
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| <b>Module 81</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 82</b>  | Unit 16 | LO3 |
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| <b>Module 83</b>  | Unit 32 | LO3 |
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| <b>Module 84</b>  | Unit 09 | LO3 |
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| <b>Module 85</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 86</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 87</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 88</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 89</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 90</b>  | Unit 16 | LO3 |
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| <b>Module 91</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 92</b>  | Unit 09 | LO3 |
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| <b>Module 93</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 94</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 95</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 96</b>  | Unit 09 | LO3 |
|                   |         | LO4 |
| <b>Module 97</b>  | Unit 10 | LO3 |
|                   |         | LO4 |
| <b>Module 98</b>  | Unit 16 | LO3 |
|                   |         | LO4 |
| <b>Module 99</b>  | Unit 32 | LO3 |
|                   |         | LO4 |
| <b>Module 100</b> | Unit 09 | LO3 |
|                   |         | LO4 |



# Module 1

The delivery begins with Unit 10 – Developing Computer Games (LO1 and LO2) and Unit 32 Computer Game Design (LO1).

Before learners can start the computer game design process, they need to have a good understanding of:

- The impact on the gaming revolution on society
- Different types, genres etc of computer games
- Principles of game design
- What makes a game popular, effective, engaging etc
- The use of expansion packs
- Different gaming platforms

Contained within the following assessment criteria/LO(s)/units:

|                                                                                                                     |    |     |         |
|---------------------------------------------------------------------------------------------------------------------|----|-----|---------|
| Explain the impact of computer games on society                                                                     | P1 | LO1 | Unit 10 |
| Compare the negative and positive impacts of computer games on individuals                                          | M1 |     |         |
| Describe different types of computer games                                                                          | P2 | LO2 | Unit 10 |
| Describe visual style and elements of gameplay used in game design with some appropriate use of subject terminology | P1 | LO1 | Unit 32 |
| Describe the history of computer gaming with regard to different genres of game play                                | M1 |     |         |
| Describe how computer games have developed over time                                                                | M2 | LO2 | Unit 10 |
| Critically evaluate the use of expansion packs in game design                                                       | D1 | LO1 | Unit 32 |
| Compare platforms and their technical aspects for running computer games                                            | D1 | LO2 | Unit 10 |



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

### Activity 1

Learners could create and deliver a presentation discussing how computer games have had an impact on society. The purpose of the presentation would be to promote the inclusion of educational games within the learning environment.

### Activity 2

Learners could present a table showing their comparisons of the positive and negative psychological impacts that computer games have on individuals.

### Activity 3

Learners could design a presentation which they will deliver describing different types of computer games. They could include the aim, purpose and genre for different types of games. They could consider multiple games in a genre and multiple genres. They could draw comparisons between them in terms of graphics, playability, costs, numbers involved, uniqueness etc.

### Activity 4

Learners could produce a report (supported by appropriate images) where they describe the visual style and elements of game play used in game design. The learners could use correct subject terminology.

### Activity 5

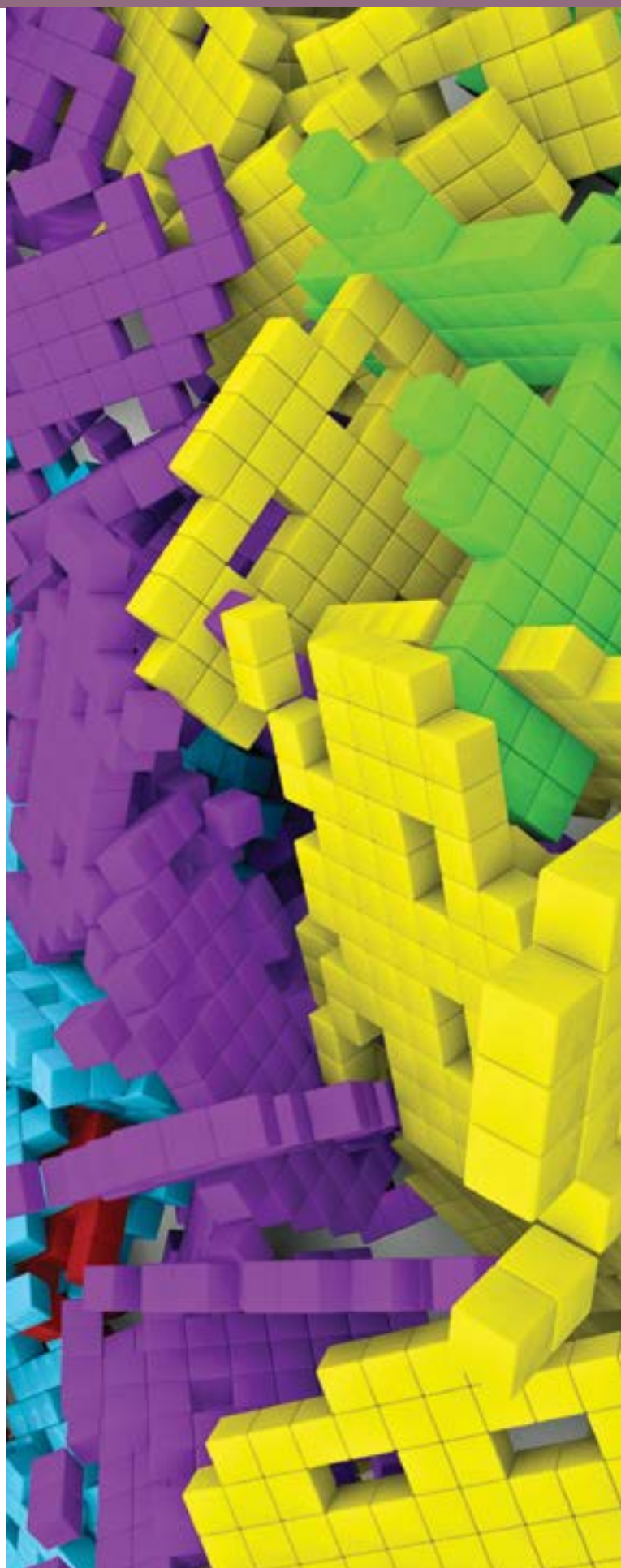
Learners could design and deliver a presentation describing the history of computer gaming. The presentation could include different genres of game play and how this has changed over time. Relevant images could be included to support the presentation. The learners could include a comparison of the way games were and are played, use of graphics, colours, characters, sound and the way higher-end CGI introduces the games and sets the scene.

### Activity 6

Learners could create an information sheet critically analysing at least three different expansion packs.

### Activity 7

Learners could produce a table to compare at least three different platforms and their technical aspects.





## Module 2

The delivery then follows through to Unit 16 – 2D Animation Production (LO1) where the learners will learn about the developments in animation and different animation techniques.

Contained within the following assessment criteria/LO(s)/units:

|                                                                                                                   |    |     |         |
|-------------------------------------------------------------------------------------------------------------------|----|-----|---------|
| Summarise accurately the techniques and development of 2D animation with some appropriate use subject terminology | P1 | LO1 | Unit 16 |
| Identify how specialist techniques have impacted on approaches used in animation                                  | M1 |     |         |
| Compare the different specialist techniques used by key animators when creating characters                        | D1 |     |         |

This will provide the learners with the basic building blocks to take into consideration when designing and creating a computer game. It will encourage them to think their ideas through carefully and consider some of the principles of game design.

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

### Activity 1

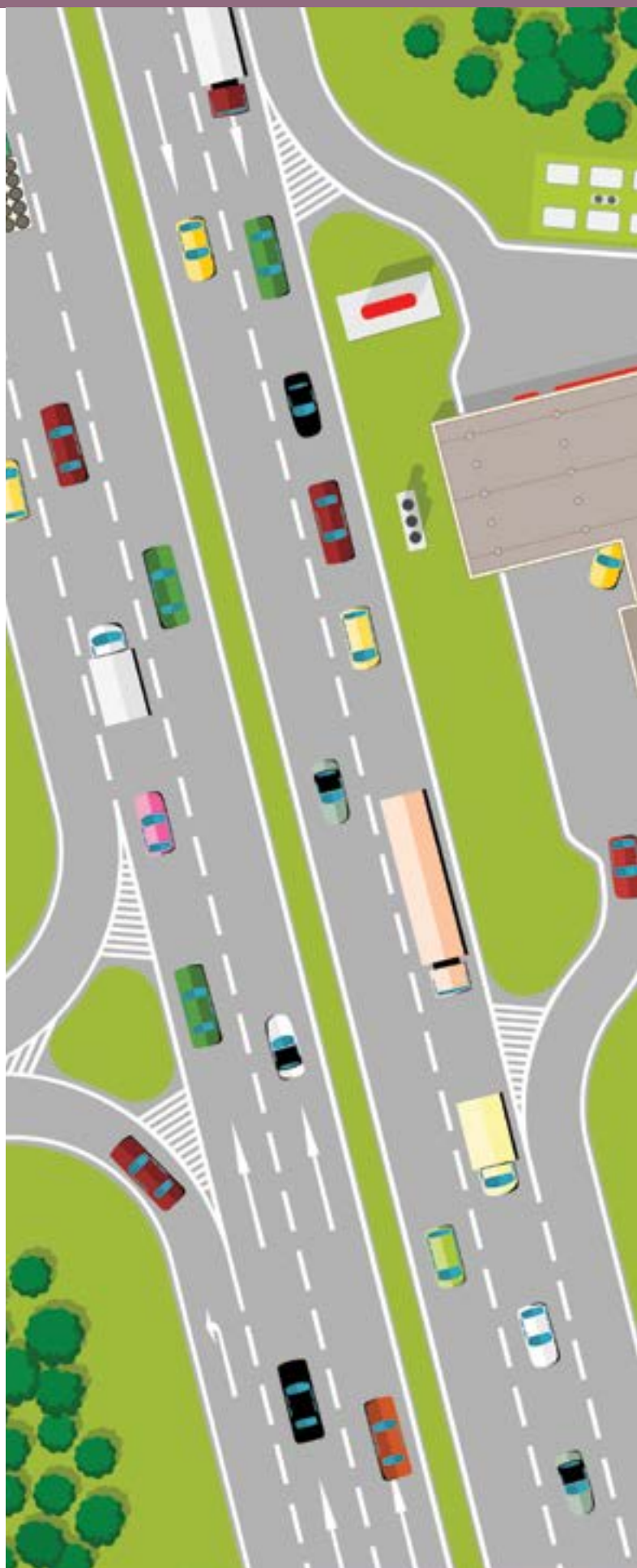
Learners could produce a report summarising the different 2D animation techniques and developments. The report could include at least two different techniques used for creating animation discussing the hardware and software used.

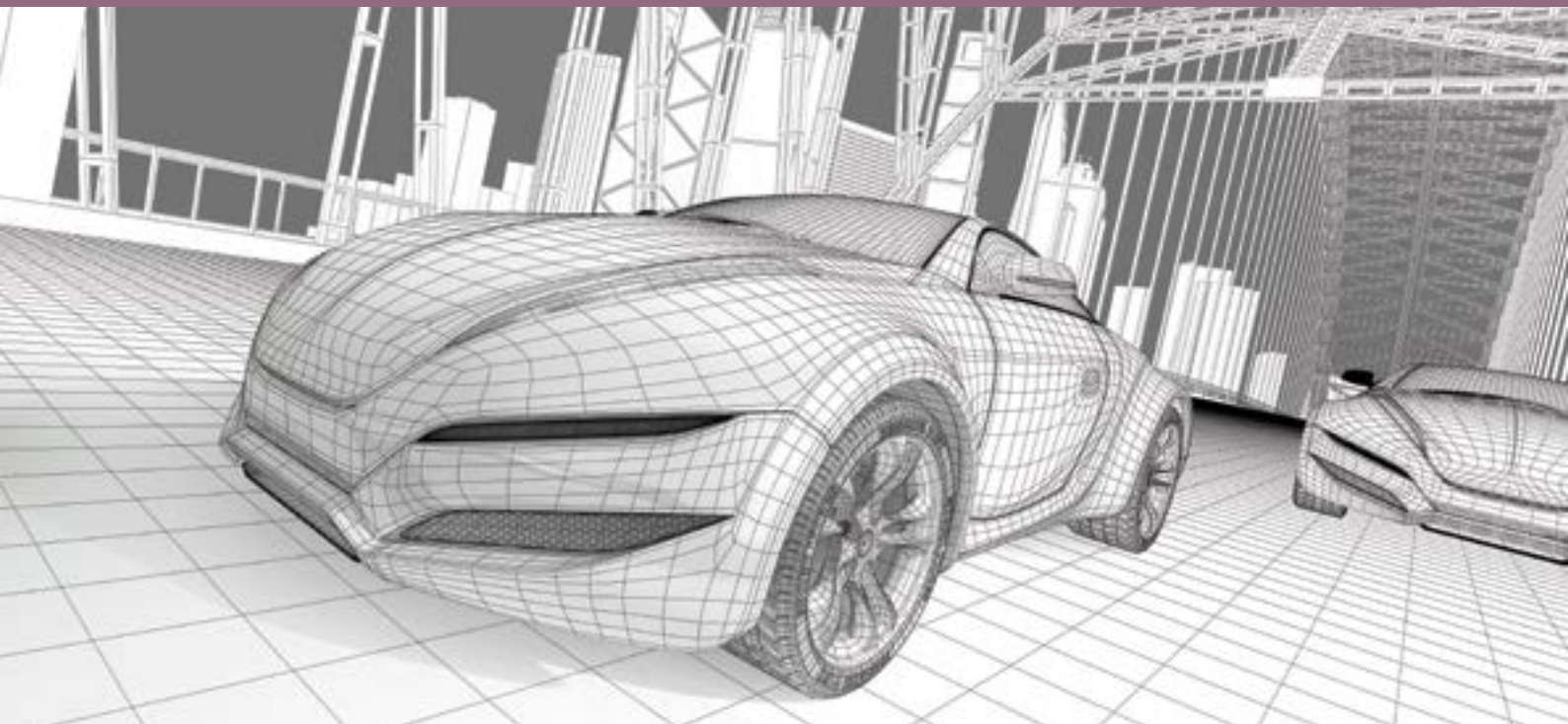
### Activity 2

Learners could create and deliver a presentation identifying and discussing at least four specialist techniques for developing an animation. This could include looking at the early days of animation through to the present day and how these developments have changed the approaches to animation. Appropriate and relevant terminology should be used along with supporting images or screen captures.

### Activity 3

Learners could research key animators from identified studios and the characters they have produced. The learners could describe how the specialist techniques have helped with the creation of the characters. This could be an extension to the presentation produced for Activity 2 above.





## Module 3

**Unit 09 – Project Planning with IT will be reinforced throughout the entire programme of learning as the learners will be project managing the design and creation of their own computer games. Before the learners start planning, they need to have knowledge and understanding of the following aspects of the project**

**Contained within the following assessment criteria/LO(s)/units:**

|                                                                |    |     |         |
|----------------------------------------------------------------|----|-----|---------|
| Illustrate typical phases of a project life cycle              | P1 | LO1 | Unit 09 |
| Explain the resources available to support the project manager | P2 |     |         |
| Compare different project methodologies                        | M1 |     |         |
| Discuss issues affecting project management                    | P3 |     |         |
| Explain the impact identified issues would have on a project   | M2 |     |         |
| Plan a defined project using IT                                | P5 | LO2 |         |

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

### Activity 1

Learners could design a presentation which they will deliver to the group. They could show an understanding of a project lifecycle and illustrate the typical phases. They could describe each of the following phases; analysis, design, implementation and evaluation. The learners should be encouraged to provide any supporting images/diagrams.

### Activity 2

Learners could create a report or booklet describing and explaining the resources required in order to support a project manager throughout a project. This could include data, roles and responsibilities of people involved with the project, funding, equipment and project management software. The learner could also briefly explain two project methodologies.

### Activity 3

Learners could provide a detailed comparison of project methodologies. At least three different project methods could be fully described and compared providing advantages and disadvantages for each of them. This could be presented in a table format.

### Activity 4

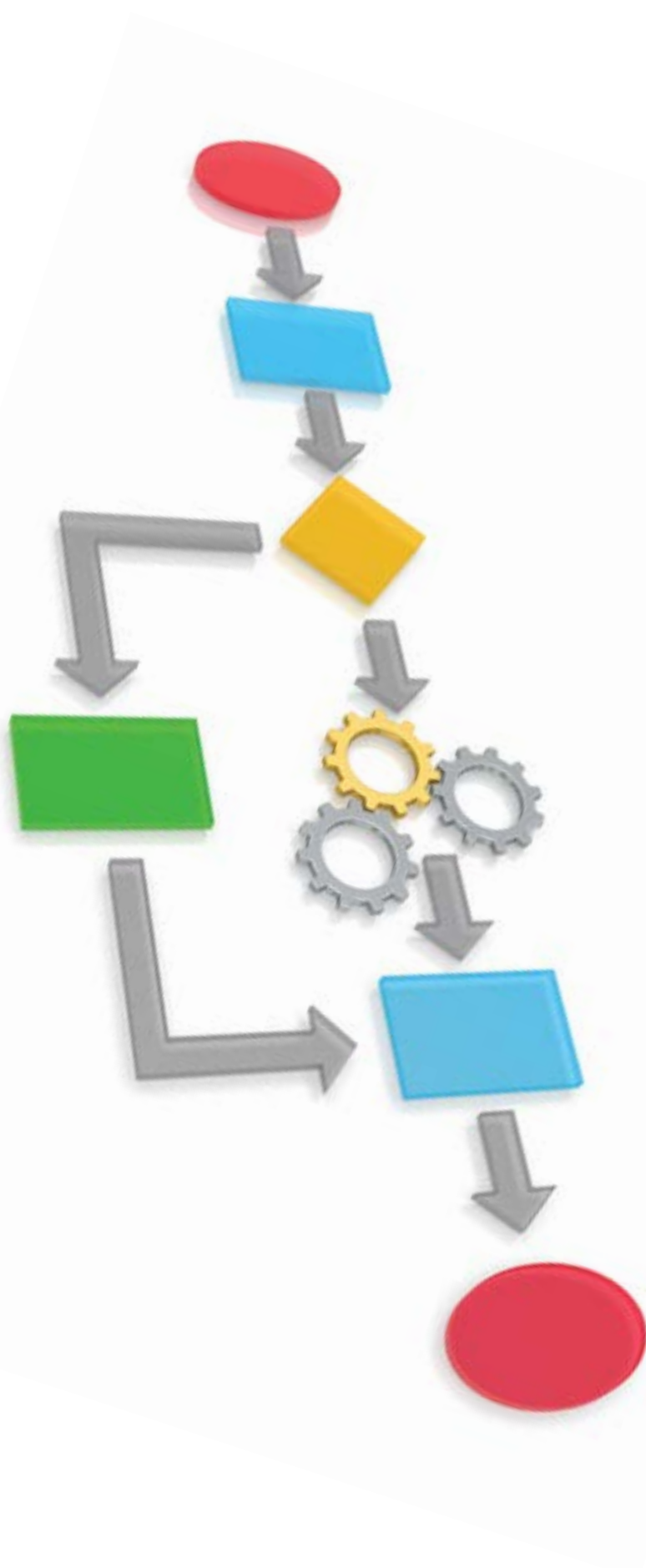
Learners could be videoed taking part in a group discussion. The learner must discuss the issues which can affect a project to include; lack of management leadership, communication, external factors changing, conflicts between staff and/or clients, unrealistic timescales, poor testing, quality of product, tracking progress, following legislation.

### Activity 5

Working in small groups, learners could design a presentation which they will deliver to the other small groups explaining the impact the following issues would have on a project:

- lack of management leadership
- communication (e.g. between project managers and clients)
- external factors changing (e.g. finance, staff members etc)
- conflicts between staff and/or clients
- unrealistic timescales
- poor testing
- quality of product
- tracking progress of project

This could include a description of how these issues could impact the project's success or failure. They could also include some examples of projects that have failed and some reasons for their failure. This may be an extension of the discussions in Activity 4.





# Module 4

Now the fun begins as the learners research and generate ideas for a computer game concept. This will include the following components:

- Deciding on the criteria to include; genre, intended interface platform and audience
- Specification of the game
- Storyboard content
- How to measure success
- Producing a detailed game design
- Producing a project plan
- Producing a test plan to test the functionality of the game (does it work as intended?)
- Identification of potential expansion packs

Contained within the following assessment criteria/LO(s)/units:

|                                                                                                                           |    |     |         |
|---------------------------------------------------------------------------------------------------------------------------|----|-----|---------|
| Produce a project plan                                                                                                    | P4 | LO2 | Unit 09 |
| Generate outline ideas for a game concept working within appropriate conventions                                          | P2 | LO2 | Unit 32 |
| Produce a design for a computer game for a given specification                                                            | P3 | LO3 | Unit 10 |
| Generate outline ideas for a 2D animation with soundtrack working within appropriate conventions and with some assistance | P2 | LO2 | Unit 16 |
| Generate outline ideas for a game concept working within appropriate conventions                                          | P2 | LO2 | Unit 32 |
| Produce a project specification                                                                                           | P4 | LO2 | Unit 09 |
| Generate outline ideas for a 2D animation with soundtrack working within appropriate conventions and with some assistance | P2 | LO2 | Unit 16 |
| Generate a detailed plan for a game concept                                                                               | M2 | LO2 | Unit 32 |
| Produce a design for a computer game for a given specification                                                            | P3 | LO3 | Unit 10 |
| Create annotated storyboarding ideas for a 2D animation with soundtrack                                                   | M2 | LO2 | Unit 16 |
| Critically evaluate the use of expansion packs in game design                                                             | D1 | LO1 | Unit 32 |
| Describe how the design for the computer game can have capacity for expansions                                            | M3 | LO3 | Unit 10 |

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

### Activity 1

Learners could generate their outline ideas for a game concept by creating a mind-map/spider diagram working within appropriate conventions. They could then produce a project plan which includes.

- Identification of clients, stakeholders and audience.
- The intended outcome – game description; specification.
- Benefits of the outcome.
- How to measure the success of the outcome.
- Constraints.
- Deliverables.
- Ethical, sustainable and health and safety issues.
- Images and text to 'walk' the reader through the concept of the game.
- A clear indication as to what the game is about, how it will be played and how exciting it will be.
- Outline ideas for the 2D animation with soundtrack (a minimum of 45 seconds). This could be in the form of a storyboard, as an improvement to the game.

### Activity 2

The learners could produce a detailed plan for the game concept which expands on their outline plan from the previous activity. In addition, they could also produce a storyboard over multiple levels, scene setting the players, rules and scoring etc. There could also be a storyboard suitably annotated for the ideas for the 2D animation and soundtrack.

### Activity 3

Learners could expand on their detailed games design and provide ideas for creating downloadable expansion packs which could enhance the game further. The learner could create and deliver a presentation to 'sell/pitch their ideas', which must include relevant images, to a 'customer'.



SPACE MONSTER HERO #7



SPACE MONSTER HERO #8



SPACE MONSTER HERO #11



SPACE MONSTER HERO #12



SPACE MONSTER HERO #1



SPACE MONSTER HERO #2

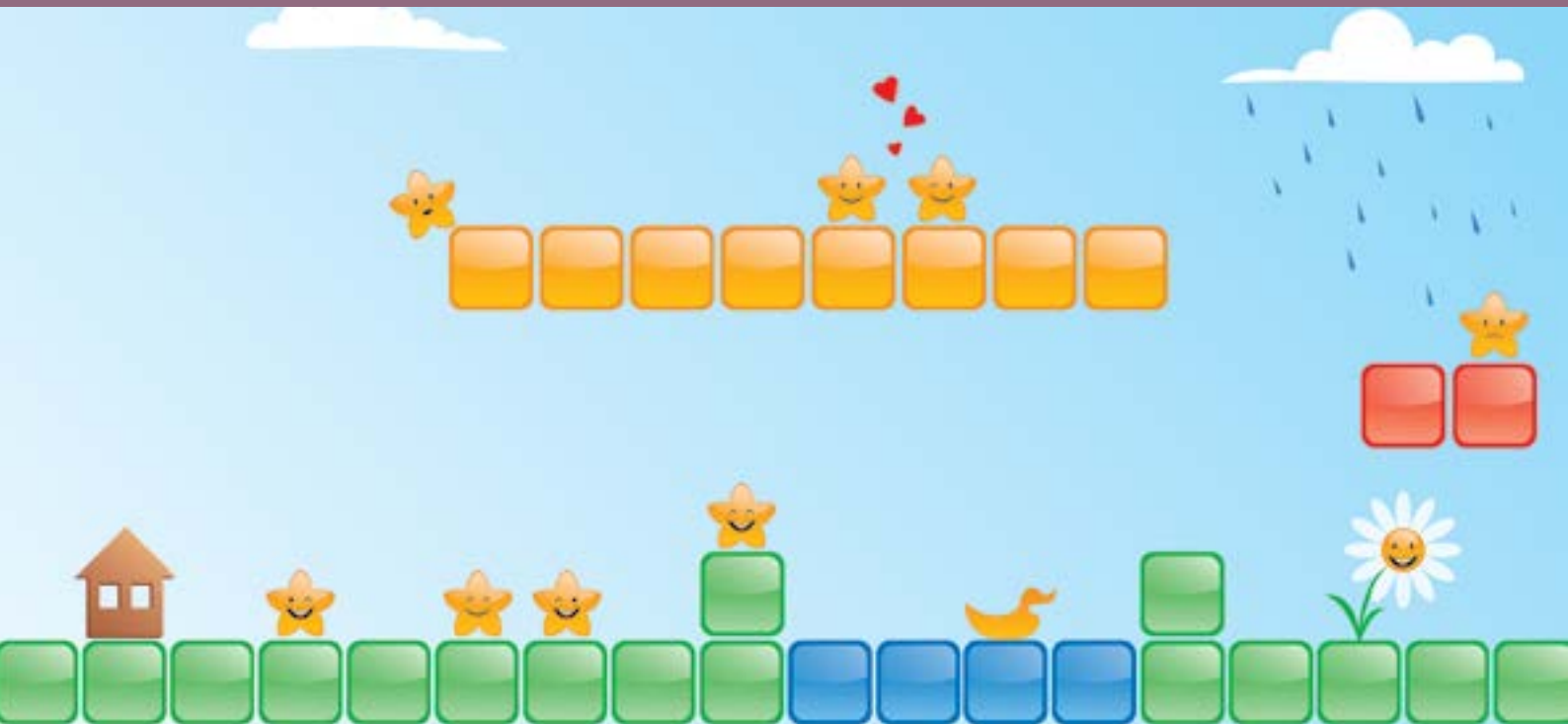


SPACE MONSTER HERO #5



SPACE MONSTER HERO #6





## Module 5

**It is important that the learners develop techniques for preparing game design documentation to include the different types of design documentation as well as additional planning techniques and further considerations. The learners producing game design documentation which reflects their personal game ideas is a good way to review knowledge and understanding.**

They will also learn about the creation and continued maintenance of a functioning project plan, to include investigation on the different software packages available and what constitutes a successful project plan. The learners producing a comprehensive project plan for their design will assist in the review of their knowledge and understanding.

**Contained within the following assessment criteria/LO(s)/units:**

|                                                                  |    |     |         |
|------------------------------------------------------------------|----|-----|---------|
| Prepare design documents for a game with some assistance         | P3 | LO3 | Unit 32 |
| Produce a design for a computer game for a given specification   | P3 | LO3 | Unit 10 |
| Create annotated storyboard ideas for a 2D animation with        | D2 | LO2 | Unit 16 |
| Evaluate the importance of creating a high concept game document | D3 | LO3 | Unit 32 |
| Prepare design documents for a game with some assistance         | P3 | LO3 | Unit 32 |
| Plan a defined project using IT                                  | P5 | LO2 | Unit 09 |
| Create a project plan for the development of the game concept    | M3 | LO3 | Unit 32 |
| Create a PERT chart for your defined project                     | M3 | LO2 | Unit 09 |
| Evaluate the use of Gantt and PERT charts in project planning    | D1 |     |         |



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

### Activity 1

Learners could produce design documentation for their computer game (they could be provided with some assistance). The learners could create a high concept game document and a game treatment document. The learners could create at least one additional planning document to support their annotated storyboard for the 2D animation with soundtrack. This could be evidenced in the form of a bar, dope or log sheet. They may also use the information developed in Module 4.

### Activity 2

Learners could evaluate the importance of creating a high concept game document. They could present their evaluation in the form of a report supported by the documentation created for the activity above.

### Activity 3

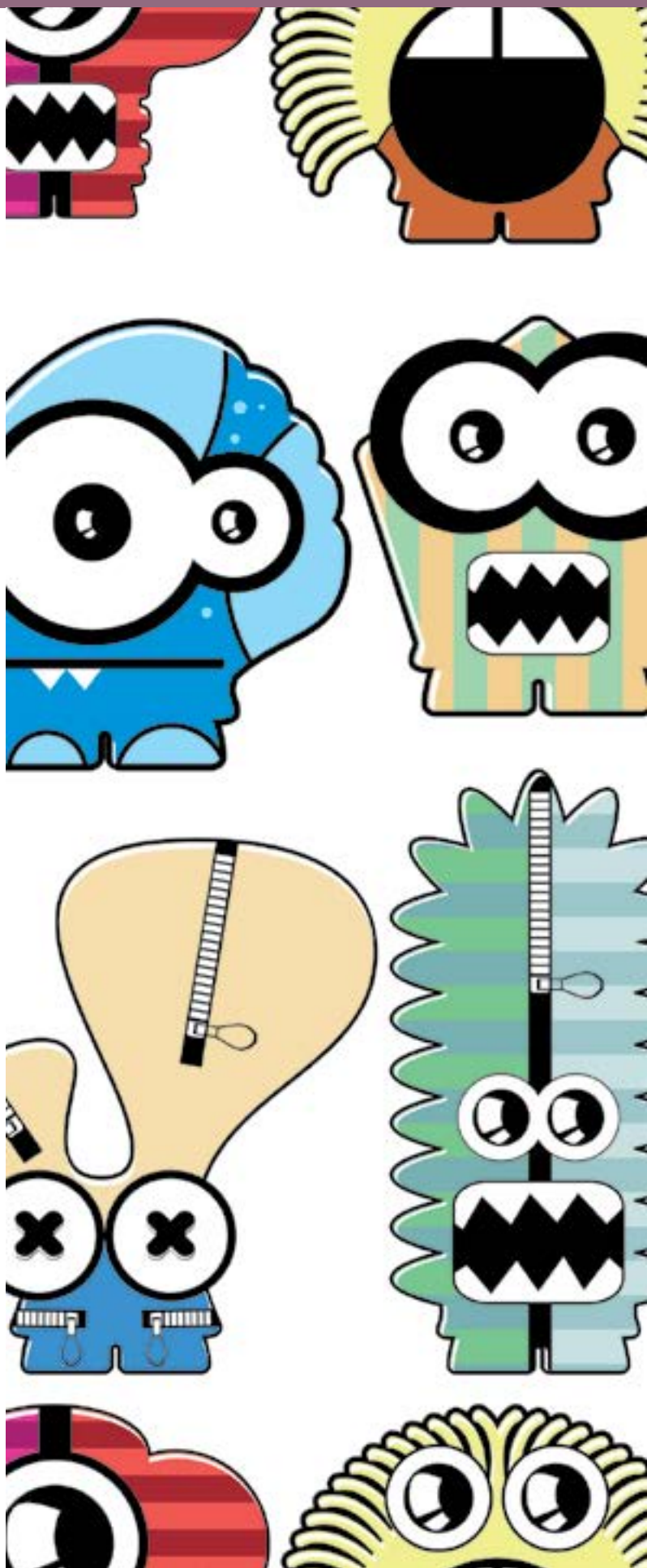
Learners could provide evidence of their project plan which will have been created using project planning software. The project plan could include activities, deadlines, milestones, dependencies and resources as a minimum. The project plan can be presented electronically with accompanying documentation.

### Activity 4

Learners could use their project plan to create a PERT chart. Their chart should be sufficiently detailed to meet the full scope of a multi-task/multi-resources project containing all required activities and deadlines.

### Activity 5

Learners could evaluate the use of Gantt and PERT charts, identifying the advantages and disadvantages of each. The learners could review and compare different software used to create the difference charts. They could then produce a presentation which they could deliver to a wider group.





## Module 6

**In order to create and sell a computer game, the concept needs to be 'sold' to potential stakeholders. In order to do this the learners will need to learn different presentation methods and techniques, different ways that they can document ideas and obtain feedback on their games concept and how to act on the information provided.**

**Unit 32 – Computer Game Design includes this learning and learner review would include:**

- Presenting their games concept to 'stakeholders'
- Obtaining feedback from the 'stakeholders'
- Making changes to their game concept based on the feedback they have received.
- Updating their project plan to reflect the feedback and changes

**Contained within the following assessment criteria/LO(s)/units:**

|                                                                                         |    |     |         |
|-----------------------------------------------------------------------------------------|----|-----|---------|
| Present a game concept to stakeholders with some appropriate use of subject terminology | P4 | LO4 | Unit 32 |
| Gain feedback from stakeholders about a game concept                                    | M4 |     |         |
| Improve a game concept based on feedback received from stakeholders                     | D4 |     |         |
| Follow a project plan to carry out a defined project                                    | P6 | LO3 | Unit 09 |

Throughout the remaining delivery, learners will follow their project plan, making changes as and when required to develop their project management skills further.

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

### Activity 1

Learners could present their developed game concept to stakeholders using appropriate subject terminology.

### Activity 2

Learners could obtain feedback from the stakeholders they presented to for Activity 1 above. The feedback could be in the form of written questionnaires, audio recordings etc.

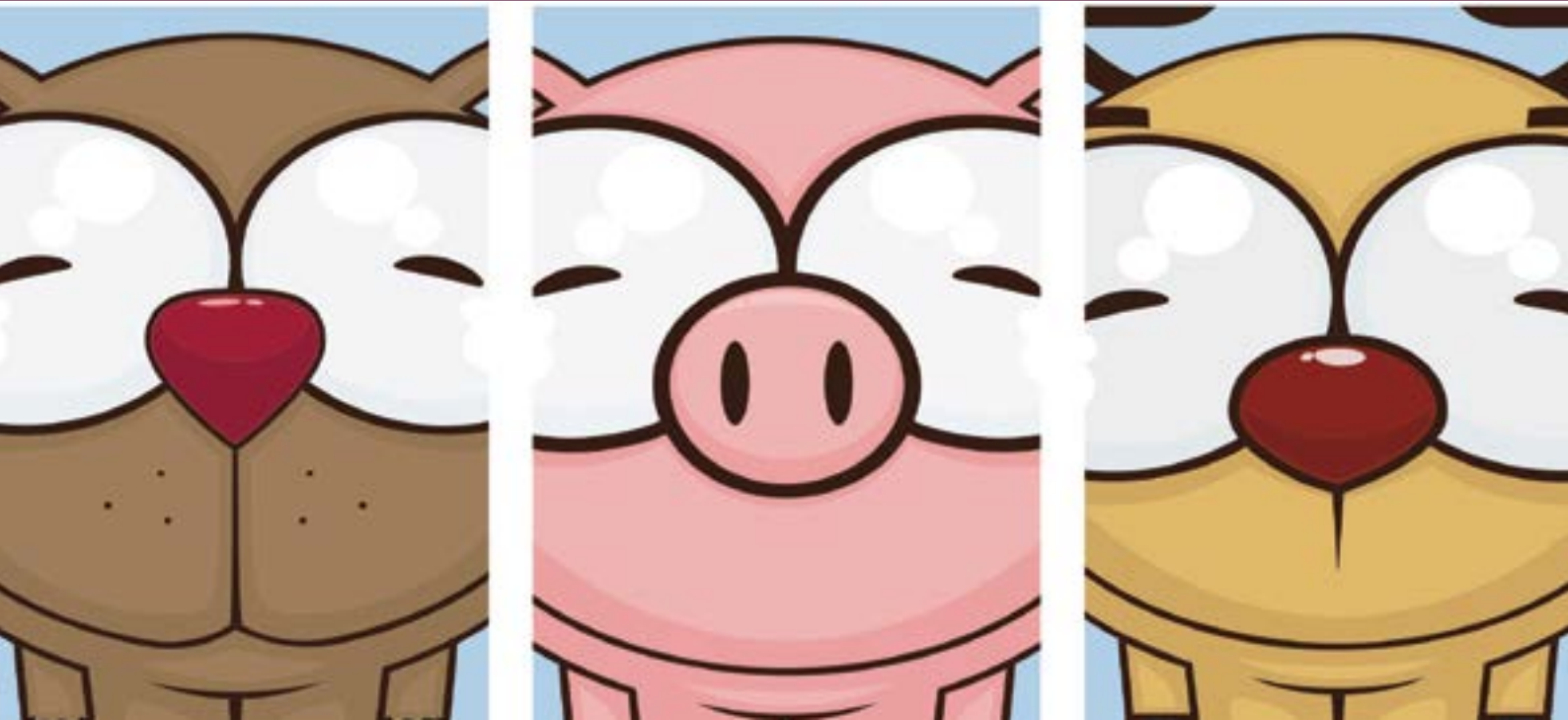
### Activity 3

Learners could improve their game concept based on the feedback they have received from the stakeholders. They could then revise their computer game concept including making changes made to their project plans and gaming documentation.

### Activity 4

Learners could follow their project plan whilst developing and testing their computer game. Their project plan/Gantt chart could display completed activities and at each milestone a review of the project plan/Gantt charts. Appropriate documentation could also be included.





# Module 7

Now the learners start getting further into their product development and delivery. They will also investigate how to:

- produce 2D animation with soundtrack
- develop a computer game ie language, compiling code, user elements etc

Contained within the following assessment criteria/LO(s)/units:

|                                                                            |    |     |         |
|----------------------------------------------------------------------------|----|-----|---------|
| Produce a 2D animation with soundtrack with some assistance                | P3 | LO3 | Unit 16 |
| Develop a computer game for a given specification                          | P4 | LO3 | Unit 10 |
| Produce a 2D animation with soundtrack with some assistance                | P3 | LO3 | Unit 16 |
| Use advanced software functions to enhance 2D animation with a soundtrack  | M3 |     |         |
| Justify how the use of enhanced functionalities has improved the animation | D3 |     |         |

The final review of the holistic delivery will be the creation of the 2D animation and soundtrack that they will include in the game, along with the creation of the actual computer game over multiple levels.

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

### Activity 1

Learners could create a working 2D game over multiple levels. There could be a clear purpose to their game and a scoring system using points or time constraints to add an element of competitive play. The game could include wider user interaction. It could match the storyboard, design documents and project plan created by the learners. The learners should show which tools and techniques they have used. There could also be evidence that the learners have used advanced software functions to enhance the animation eg use of scripting, green screen etc. The learners could include a justification of how the enhanced facilities they used has improved their animation.





## Module 8

As with any development or prototype, one of the most important aspects of the whole process is the testing and documentation. Once learners have created their computer game they need to test it. This will take the form of a detailed test plan with evidence of addressing any bugs that they identify.

Once any bugs are suitably ironed out, the learners need to 'test' their computer game on an audience. They will apply the earlier skills learned to obtain feedback. For project completion they will provide evidence of obtaining useful feedback from an audience who has trialled their computer game. They will then improve their computer game design based on the feedback

**Contained within the following assessment criteria/LO(s)/units:**

|                                                                                               |    |     |         |
|-----------------------------------------------------------------------------------------------|----|-----|---------|
| Follow a test strategy to test and debug a computer game                                      | P5 | LO4 | Unit 10 |
| Produce user documentation for a computer game                                                | P6 | LO4 |         |
| Comment on audience responses to own 2D work with some appropriate use of subject terminology | P4 | LO4 | Unit 16 |
| Describe how computer games have developed over time                                          | M2 | LO2 | Unit 10 |
| Gain user feedback to a computer to suggest improvements                                      | M4 | LO4 | Unit 16 |
| Act on user feedback to improve aspects of the computer game                                  | D2 | LO4 | Unit 10 |
| Produce user documentation for a computer game                                                | P6 | LO4 |         |
| Produce technical documentation for a computer game                                           | P7 | LO4 |         |



Learners will need to be taught how to create good user documentation and good technical documentation. With any development of software, of which computer games are one group, documentation needs to be generated. Users need simple support on how to install the computer game, play it etc. Technical users need documentation to include the data dictionary, algorithm design etc. Learners will create user documentation and computer game technical documentation.

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

### Activity 1

Learners could produce a test plan/table using multiple tests throughout the game. The test plan/table could thoroughly test the game against the specification. There could also be evidence showing the debugging of the game.

### Activity 2

Learners could analyse the feedback they have received. Their analysis could be presented in the form of a report supported by appropriate graphs and/or images. The analysis of the feedback could include suggestions for improvement. The learners could state why they may or may not use the improvements suggested in the feedback. The actual feedback received could also be presented with the learners justifying the format that the feedback took and why it was appropriate.

### Activity 3

Learners could show how they improved their 2D animation with soundtrack based on the feedback from the audience. They could provide screen captures of the changes they made.

### Activity 4

Learners could show how they improved their game design based on the feedback from others and the improvements that they have also identified. They could provide annotated screen captures of the changes in the final game. The learners should also justify why the changes have been made.

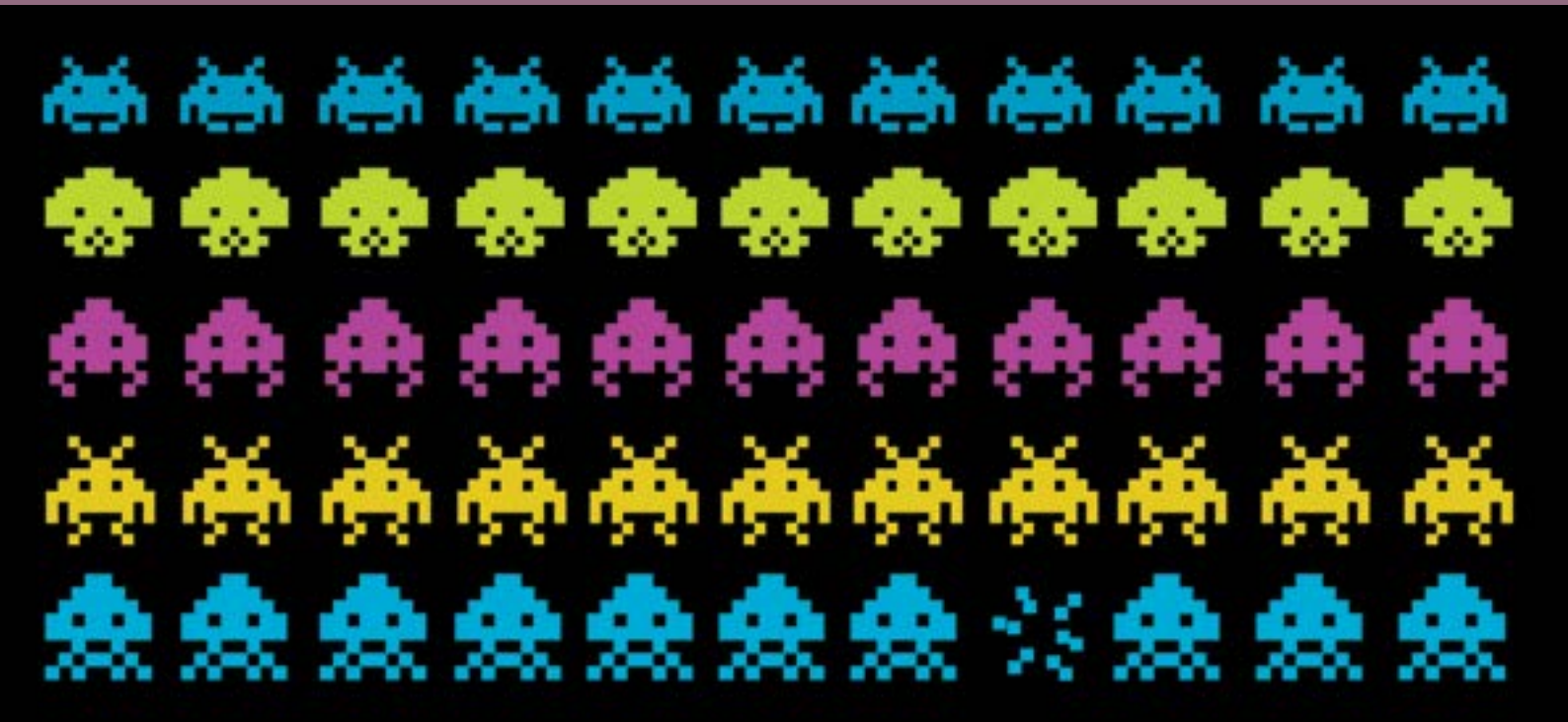
### Activity 5

The learners could produce the following documentation:

- User documentation
- Game technical documentation

Their documentation should be clear and include appropriate graphics and/or images to aid the understanding of what is being said.





# Module 9

Finally, the learners must understand the need to always review the project management process. Did they follow the plan, was it SMART, what changes would they make for future projects, feedback from stakeholders and other information? Learners should record ongoing project maintenance, provide evidence of reviewing at every milestone identifying factors that affected the overall project and outcome. They should be encouraged to analyse the feedback they receive to appreciate why deadlines/milestones were missed or changed.

Contained within the following assessment criteria/LO(s)/units:

|                                                                                       |    |     |         |
|---------------------------------------------------------------------------------------|----|-----|---------|
| Carry out a review of the project management process                                  | P7 | LO4 | Unit 09 |
| Recommend improvements for future projects using the findings from the project review | D2 |     |         |



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.

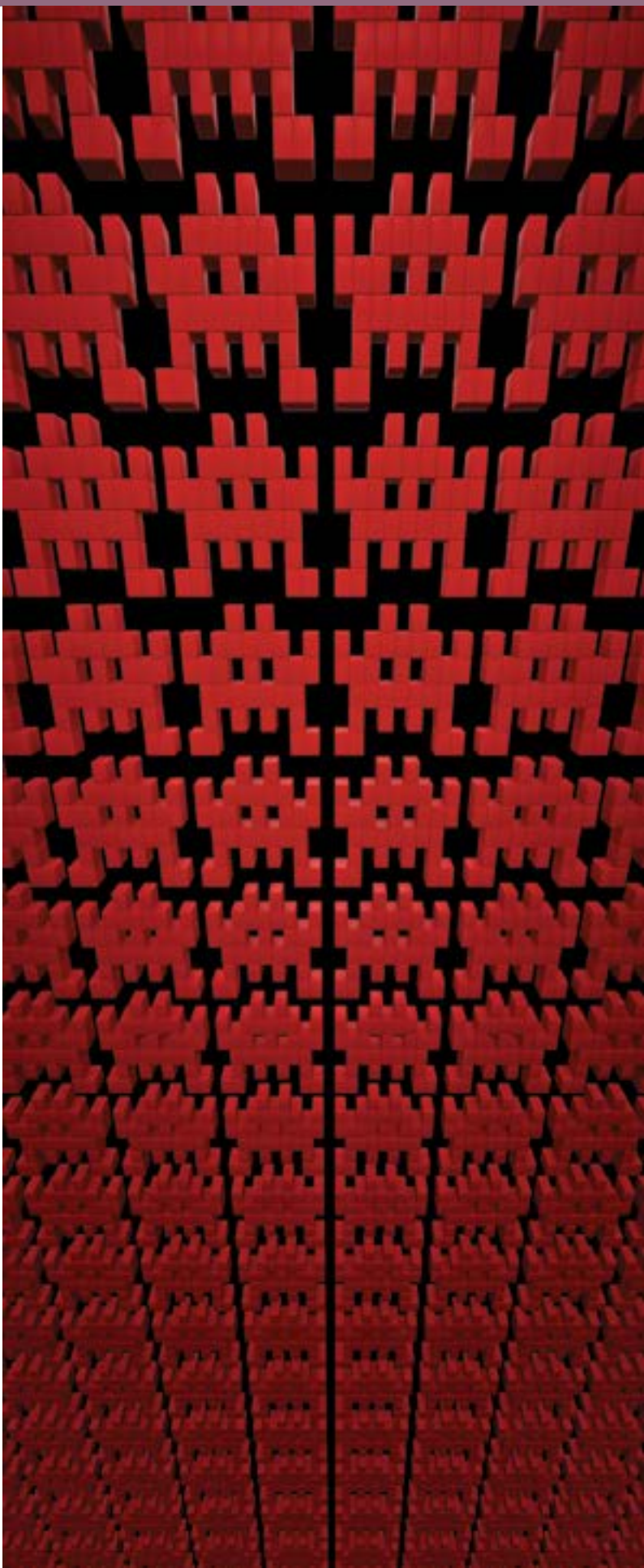
## Practice Review Activities

### Activity 1

The learners could create and deliver a presentation of their review of their project. They could provide evidence that they have reviewed their project at every milestone, compared it with the project specification, reviewed the final product and identified factors which affected the project. The learners could also provide evidence of the feedback they received and their analysis of the feedback. In addition, they could also review their project management skills explaining why deadlines or milestones were missed or changed.

### Activity 2

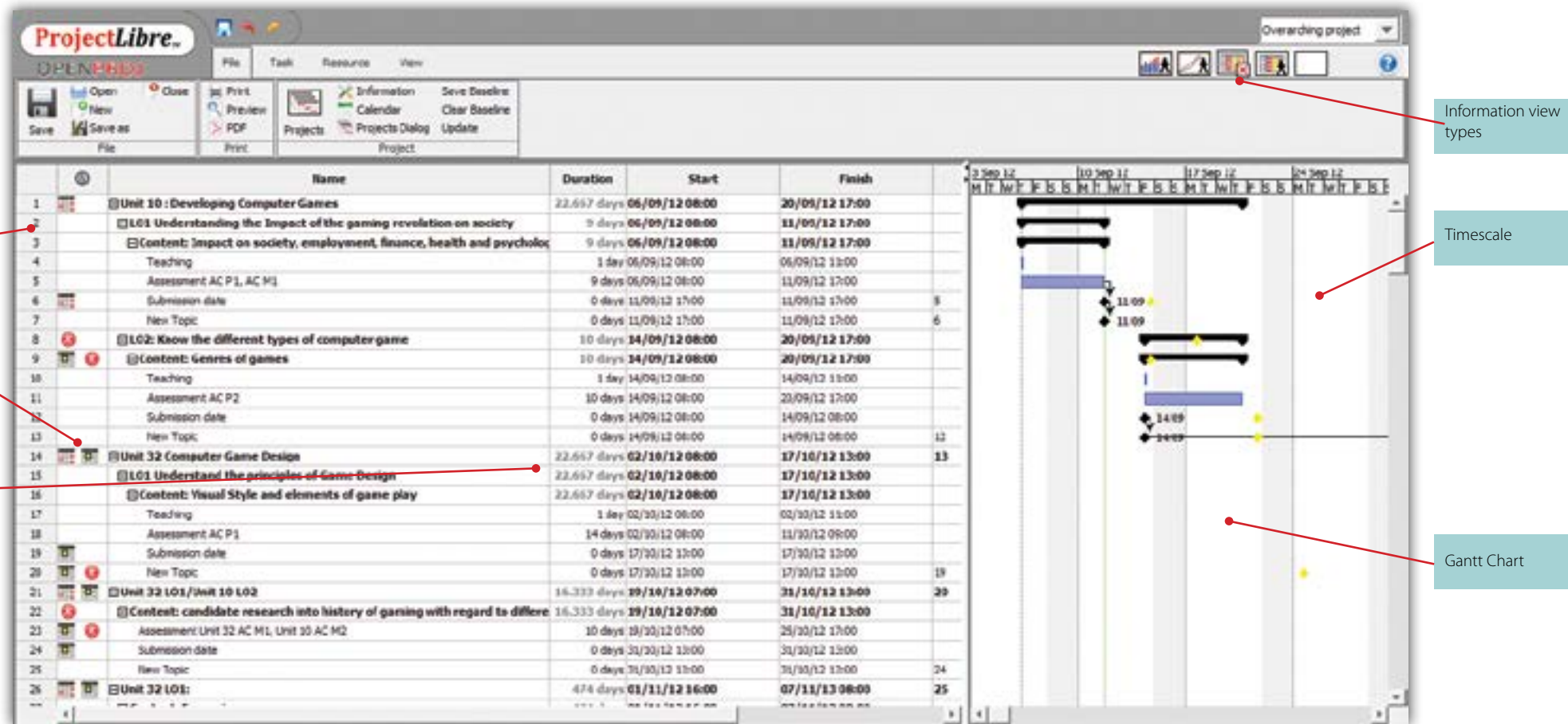
The learners could produce a comprehensive evaluation of the project process and the final outcomes. The learners could provide detailed suggested improvements for the project and product along with suggestions of what could be done differently on any future projects.





The following pages are screen images from Project Libre ([www.projectlibre.org](http://www.projectlibre.org)) used to create a project plan for this programming of learning for the holistic delivery, review of learning for the four units from the Level 3 Cambridge Technicals in IT.

These examples have been created using open source project management software but any appropriate approach may be adopted.



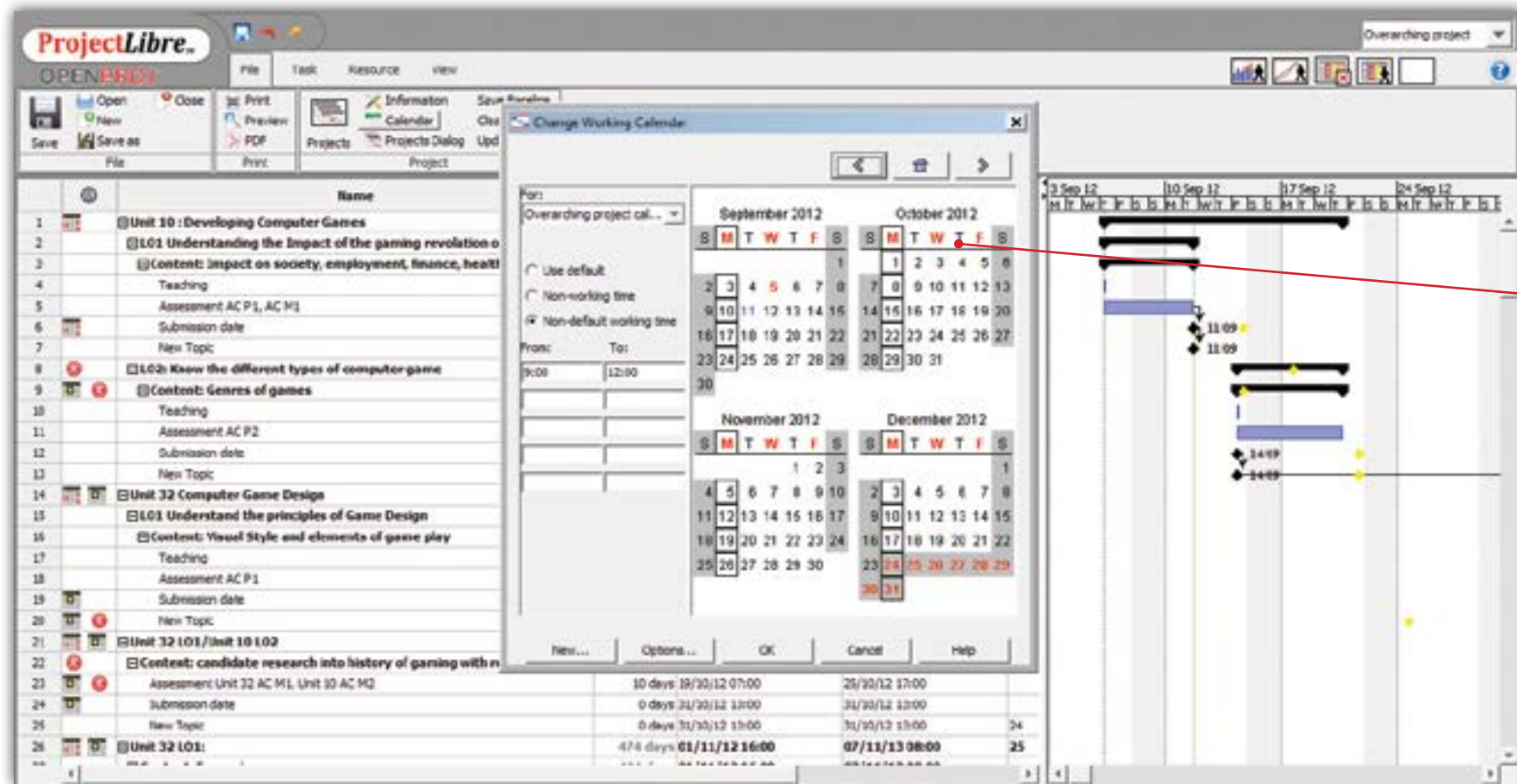
The above diagram shows the layout of the programming of learning for the four units which can be delivered as one project. The Gantt chart is created simultaneously with the insertion of the tasks, sub tasks and milestones.

The screenshot displays the ProjectLibre application interface. On the left, a project tree lists tasks such as 'Unit 10: Developing Computer Games' and 'Unit 12: Computer Game Design'. The main area shows a Gantt chart with task bars and a timeline from September 12 to September 13. A red arrow points from a task bar to the 'Change Working Calendar' dialog box. This dialog box features four calendar grids for September, October, November, and December 2012, with days of the week labeled. It includes options for 'Use default', 'Non-working time', and 'Non-default working time', and buttons for 'New...', 'Options...', 'OK', 'Cancel', and 'Help'.

- Each project should have its own working calendar showing holidays (in red)



This diagram shows how the calendar can be adjusted to meet the timetabling of lessons, practical activities and private study. The learners are timetabled for lessons on Mondays, Wednesdays and Fridays again the letter of the weekday is highlighted to show that attendance or activity is required on these days. So, for Monday and Wednesday, lesson/practical sessions of three hours were identified whereas for Friday, the whole day was identified as being used by learners to undertake their own research and review activities.

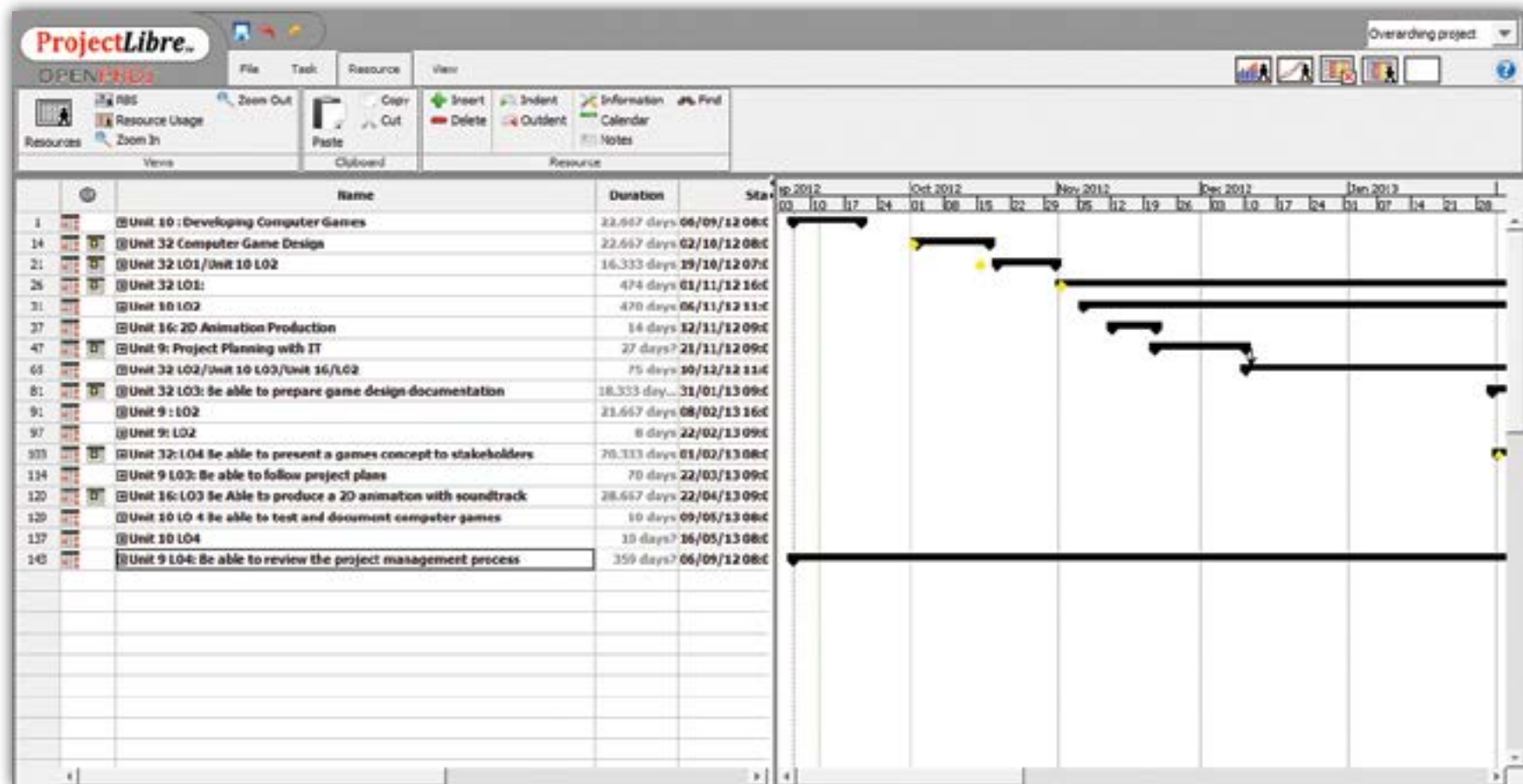


The screenshot displays the ProjectLibre software interface. On the left, a project list shows units and tasks, including 'Unit 10: Developing Computer Games' and 'Unit 32: Computer Game Design'. The main area shows a calendar view for September, October, November, and December 2012. A 'Change Working Calendar' dialog box is open, showing the calendar for the 'Overarching project cal...' and allowing selection of working days. The dialog box includes options for 'Use default', 'Non-working time', and 'Non-default working time'. The calendar view shows days of the week (M, T, W, T, F, S) and dates. A red arrow points from the text box on the right to the highlighted days (Monday, Wednesday, and Friday) in the calendar.

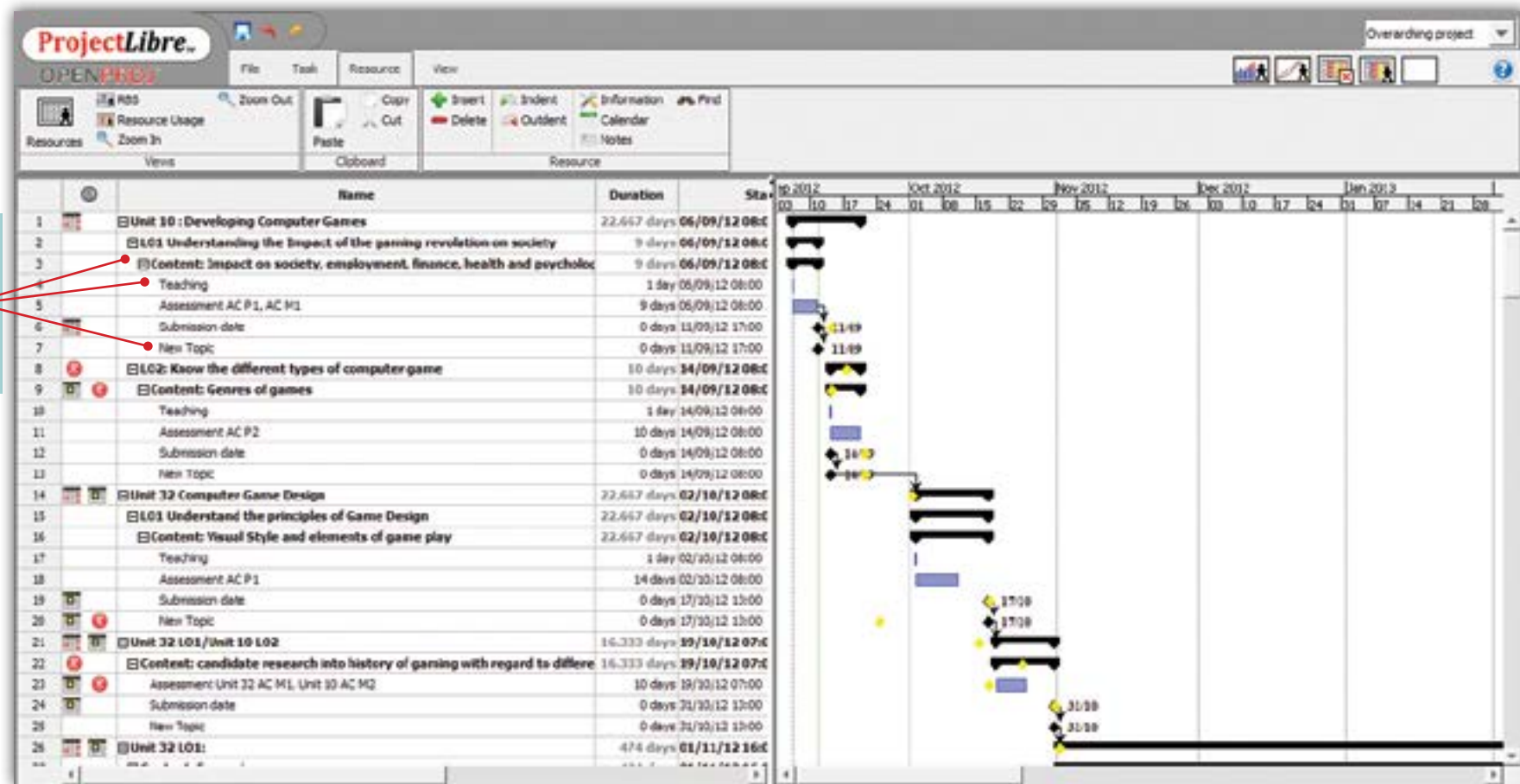
The days (Monday, Wednesday and Friday) are highlighted because they are work days and the working time has been identified, for Monday this is 9am to 12pm.



The setting up of a project can be daunting but if the major tasks are identified as shown in the diagram below it provides a solid backbone. Here we have used the unit numbers and learning outcomes titles as the major tasks to be completed. Each task is typed in the order they appear on the programming of learning. Please note that at this time, there is no need or point to include durations/start or finish times.

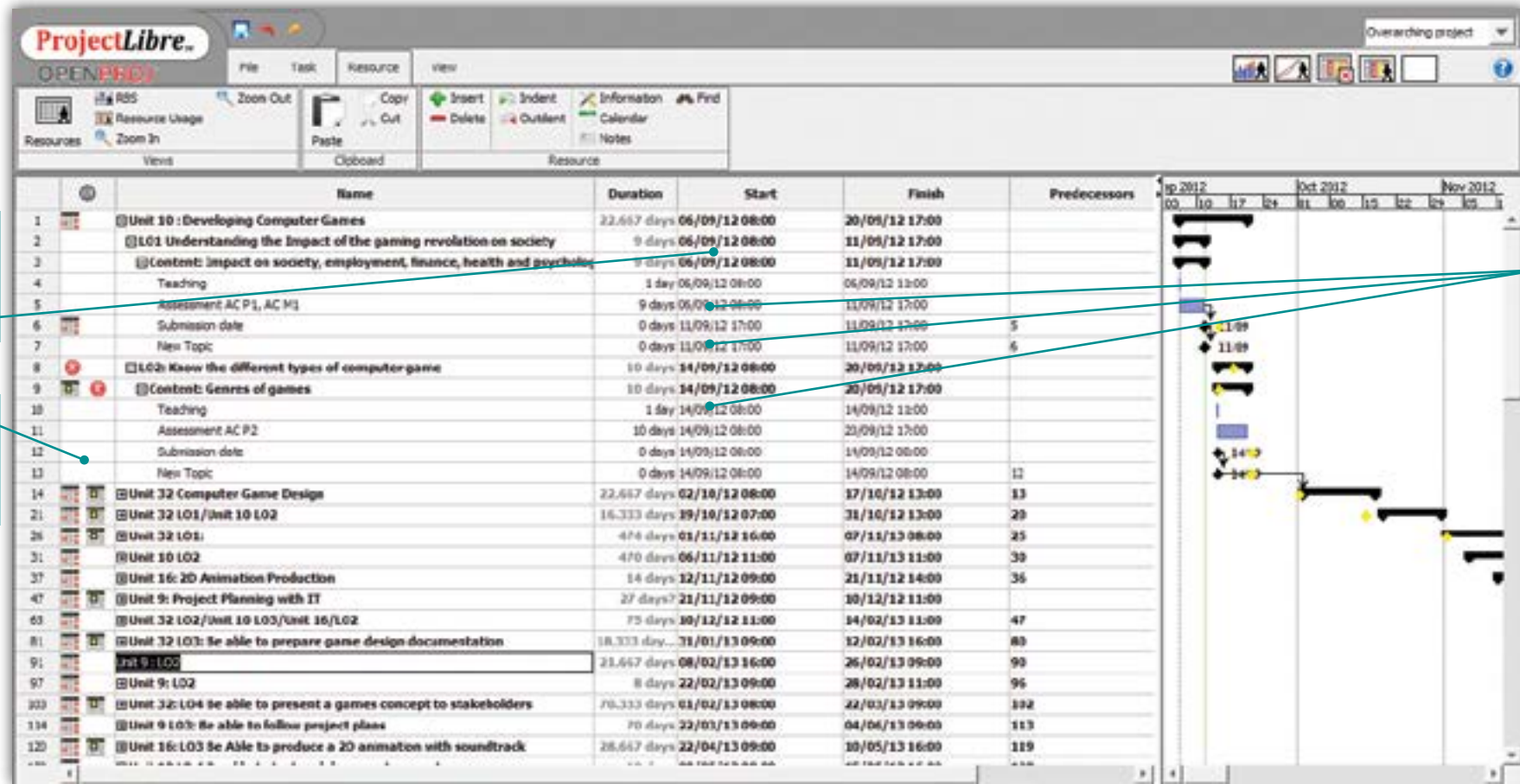


This diagram shows how the teaching elements and assessment criteria, which are the subtasks, can then be incorporated into the project. Now the duration, start dates and predicted or immutable end dates and milestone are identified.





The diagram below demonstrates how the various dates are identified within the project.



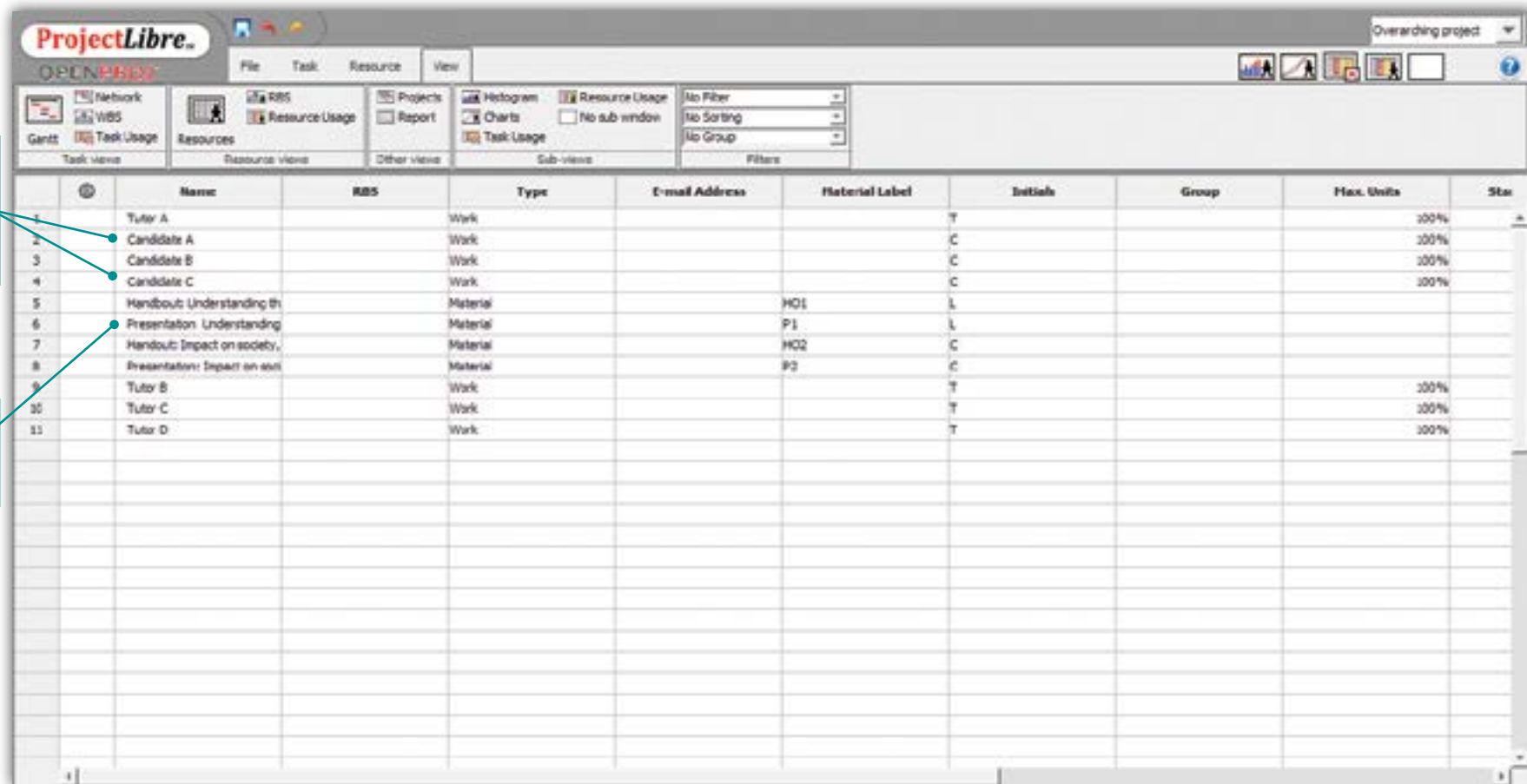
For the main tasks you cannot set a duration, this will be calculated from the duration of the sub tasks.

Some dates cannot move eg submission dates and these will be highlighted as shown here

Here the duration of the sub tasks have been set. Note that for the submission date and new topic there is no time allowance as these are milestones, points at which progress can be checked.



Now the resources can be identified and here is the start of this process. Four tutors have been identified and three learners, these are because they will all carry out work which is essential to the project. For example, tutors will produce materials such as handouts, presentations, assessment briefs, deliver learning and review. Learners will carry out the practice tasks and review the outcomes.



The screenshot shows the ProjectLibre software interface. The 'Resource' tab is selected in the top menu. The table below lists the resources identified for the project.

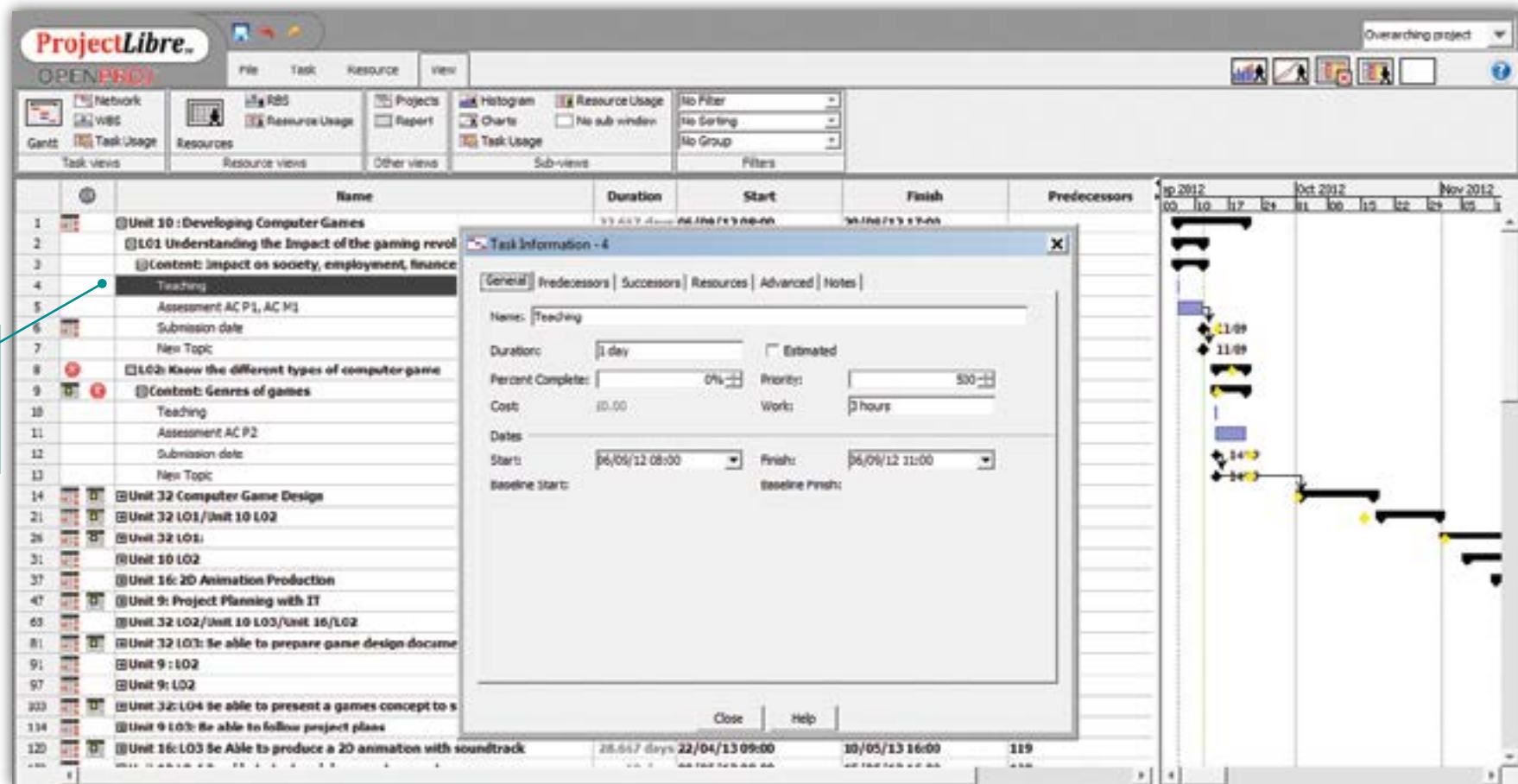
|    | Name                        | RBS | Type     | E-mail Address | Material Label | Initials | Group | Max. Units | Status |
|----|-----------------------------|-----|----------|----------------|----------------|----------|-------|------------|--------|
| 1  | Tutor A                     |     | Work     |                |                | T        |       | 100%       |        |
| 2  | Candidate A                 |     | Work     |                |                | C        |       | 100%       |        |
| 3  | Candidate B                 |     | Work     |                |                | C        |       | 100%       |        |
| 4  | Candidate C                 |     | Work     |                |                | C        |       | 100%       |        |
| 5  | Handout: Understanding th   |     | Material |                | HO1            | L        |       |            |        |
| 6  | Presentation: Understanding |     | Material |                | P1             | L        |       |            |        |
| 7  | Handout: Impact on society  |     | Material |                | HO2            | C        |       |            |        |
| 8  | Presentation: Impact on soc |     | Material |                | P2             | C        |       |            |        |
| 9  | Tutor B                     |     | Work     |                |                | T        |       | 100%       |        |
| 10 | Tutor C                     |     | Work     |                |                | T        |       | 100%       |        |
| 11 | Tutor D                     |     | Work     |                |                | T        |       | 100%       |        |

The resources for the project can then be identified and these will include any individual who will work on the project

The resources will also include material such as handouts created or assignments.



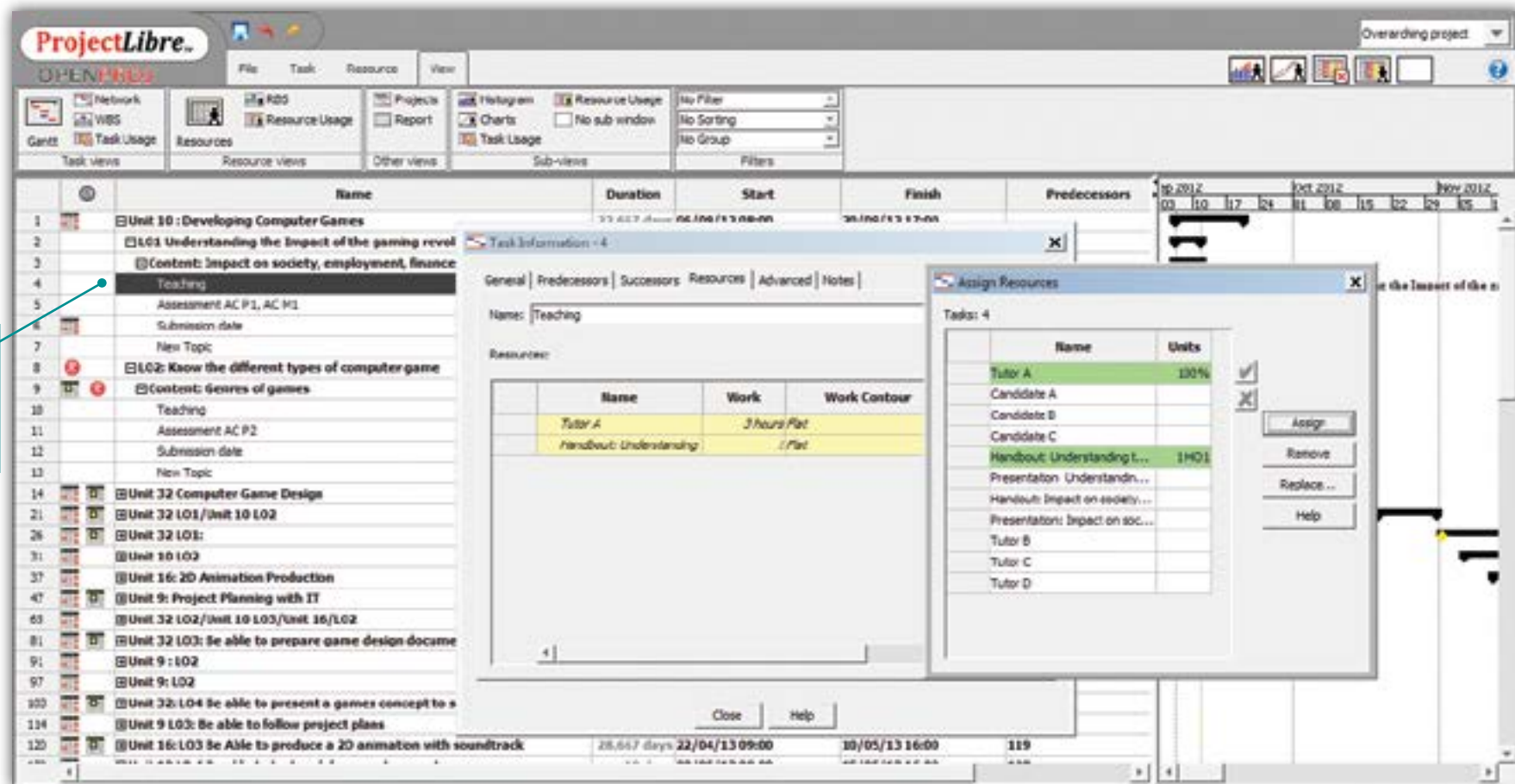
For each task, we can identify the appropriate range of resources such as who the tutor is, which handouts, notes, etc should be provided, the learners who should be involved and the location of appropriate teaching space.



The screenshot shows the ProjectLibre software interface. The main window displays a task list with columns for Name, Duration, Start, Finish, and Predecessors. A 'Task Information' dialog box is open for task 4, showing details such as Name (Teaching), Duration (1 day), Percent Complete (0%), Priority (500), Cost (£0.00), Work (3 hours), Start date (06/09/12 08:00), and Finish date (06/09/12 11:00). The dialog box also has tabs for General, Predecessors, Successors, Resources, Advanced, and Notes. The task list includes tasks like 'Unit 10: Developing Computer Games', 'Unit 10 L01: Understanding the Impact of the gaming revolution', 'Unit 10 L02: Know the different types of computer game', 'Unit 10 L03: Genres of games', 'Unit 10 L04: Assessment AC P1, AC M1', 'Unit 10 L05: Submission date', 'Unit 10 L06: New Topic', 'Unit 10 L07: Assessment AC P2', 'Unit 10 L08: Submission date', 'Unit 10 L09: New Topic', 'Unit 10 L10: Computer Game Design', 'Unit 10 L11: Unit 10 L01/Unit 10 L02', 'Unit 10 L12: Unit 10 L01', 'Unit 10 L13: Unit 10 L02', 'Unit 10 L14: Unit 10: 2D Animation Production', 'Unit 10 L15: Unit 9: Project Planning with IT', 'Unit 10 L16: Unit 10 L02/Unit 10 L03/Unit 10 L04', 'Unit 10 L17: Unit 10 L03: Be able to prepare game design document', 'Unit 10 L18: Unit 9: L02', 'Unit 10 L19: Unit 9: L02', 'Unit 10 L20: Unit 10: L04 Be able to present a games concept to s', 'Unit 10 L21: Unit 9 L03: Be able to follow project plans', and 'Unit 10 L22: Unit 10: L03 Be Able to produce a 2D animation with soundtrack'.

Here we have the screen which allows us to assign resources to the relevant tasks. In this case, task 4.

Once assigned, the resources appear under the task information so that it is readily available for the individual assigned to that task and the project manager for checking.



The screenshot shows the ProjectLibre software interface. The main window displays a Gantt chart and a task list. A task named 'Teaching' (Task 4) is selected. A 'Task Information' dialog box is open, showing the 'Resources' tab. The 'Resources' table lists 'Tutor A' with a work of 3 hours per flat. An 'Assign Resources' dialog box is also open, showing a list of resources including 'Tutor A' (100%), 'Candidate A', 'Candidate B', 'Candidate C', 'Handbook: Understanding...', 'Presentation: Understandin...', 'Handouts: Impact on society...', 'Presentation: Impact on soc...', 'Tutor B', 'Tutor C', and 'Tutor D'. The 'Assign' button is highlighted.

Here we have the screen which allows us to assign resources to the relevant tasks. In this case, task 4.



This guide is an example of how delivery can be conducted holistically. The example project plan can be adapted to suit the particular needs of your timetable and learners. Other units which could be included to this outline programming of learning are:

- Unit 14 – Computer Animation
- Unit 15 – Computer Game Platforms and Technologies

Other examples of units which could be delivered holistically as an overall project are identified below.

## Creating a Website for a Business

- Unit 09 – Project Planning with IT
- Unit 12 – Website Production
- Unit 17 – Interactive Media Authoring
- Unit 18 – Web Animation for Interactive Media
- Unit 24 – Client Side Customisation of Web Pages
- Unit 26 – Web Server Scripting
- Unit 31 – Digital Graphics for Interactive Media

## IT Technical Support

- Unit 03 – Computer Systems
- Unit 04 – Managing Networks
- Unit 05 – Organisational Systems Security
- Unit 07 – Computer Networks
- Unit 08 – IT Technical Support
- Unit 09 – Project Planning with IT
- Unit 11 – Maintaining Computer Systems
- Unit 13 – Installing and Upgrading Software
- Unit 21 – Communication Technologies
- Unit 22 – IT Systems Troubleshooting and Repair
- Unit 28 – Networked Systems Security

## Skills Guides

A range of skills guides are available to support the delivery of the Cambridge Technicals qualifications, focusing on areas such as project management, testing and document production. These skills guides can be downloaded from the OCR website [www.ocr.org.uk](http://www.ocr.org.uk)





## CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

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