

**Assessment Feedback Sheet**



|  |  |
| --- | --- |
| **Overall Assessment Grade Achieved** |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Learner Name** | | Husnain Ahmed | | | |
| **Assessor Name** | | Nick Depledge | | | |
| **Qualification Title** | | Pearson BTEC level 4 national extended diploma in computing | | | |
| **Unit/Module No./Title** | | Unit 11 – Digital graphics and Animation | | | |
| **Assignment No./Title** | | 11.1 How digital graphics and animations are used in computing | | | |
| **Learning Aim(s)** | | Learning aim A: Investigate the purpose and principles of digital graphics and animation. | | | |
| **Issue Date** | 28/02/2020 | **Planned Submission Date** | 06/03/2020 | **Actual Submission Date** | 06/03/2020 |

|  |  |  |
| --- | --- | --- |
| First/Second Submission | | |
| Criteria | Criteria Achieved | Assessor’s Feedback *Your feedback should include:*   * *What the learner has done well. (Knowledge, skills etc..)* * *What the learner has not achieved and what was missing.* * *Information or guidance available to the learner they could have drawn on (e.g. class notes; handouts; resources in assignment brief etc.)* |
| P1  Explain the function of computer  hardware components |  |  |
| P2  Outline different types of backup storage available |  |  |
| M1  Compare and contrast different  hardware storage devices |  |  |
| Wider Skills (Linked to Positive Futures) *Comment on the quality of the learner work, the learner’s process and practice during assessment, research skills, presentation, general behaviour and conduct, meeting deadlines, etc.* | | |
|  | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Assessor Declaration | *I certify that, to the best of my knowledge, the evidence submitted for this assignment/assessment is the learner’s own. I understand that false declaration is a form of malpractice.* | | |
| Assessor Signature: |  | Date: |  |
| Learner Declaration | *I certify that the evidence submitted for this assignment/assessment is my own. I have clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.* | | |
| Learner Signature: |  | Date: |  |

**Learner Actions**

|  |  |
| --- | --- |
| Learner’s Targets/Actions  *What needs to be developed to improve future work?* | *Actions linked to the following Positive Futures outcomes* |
|  | * Confidence * Commitment * Collaboration * Resilience |

Task 1:

**11.1: P1 – Characteristics and Methods of Processing Graphics and Animations**

**Digital Image:**

* **Raster** –
  + Resolution – measurement of monitors height x width.
  + Bit depth – how many colours are in a pixel.
  + Compression (lossy, lossless) – lossy, remover unnecessary data. Lossless, breaks it into a smaller form and puts it back together.
* **Vector** –
  + Geometrical primitives (point, lines, curves, polygons) – basic, simple shapes
  + Paths (splines) – a line that connects control points together
  + Voxel – A 3d pixel, has x y z coords.
* **Saving Methods:** 
  + How are raster graphics saved? JPG - jpeg supports up to 24-bit colour and is compressed using lossy compression, commonly used for storing digital photos and web graphics. - JPG compression works by identifying similar areas of colour inside the image and converting them to actually the same colour code, and storing all one colour together.
  + Gif uses lossless compression. They store image data using indexed colour, which is a max of 256. It works by reading a sequence of symbols, grouping the symbols into strings, and converting the strings into codes, it also uses a code table. The code table values represent single bytes from the input file. the first 256 values of the code table are encrypted first and the rest are left as blanks. The codes 256 to 4095 are used to represent any sequences of bytes. Repeated data sequences are identified, and added to the code table. To decode each code is translated using the code table to find what character they represent.
  + How are vector files saved? - divides a set of points, or vectors, into groups having approximately the same number of points closest to them. They are stored as paths.

**3D images (Coordinate systems):**

* Geometrical primitives (points, lines, voxel) – made up of points, lines that allow you to change the shape / appearance.
* 3D viewport – can change the angle you view a 3d object from.
* Camera – the POV you view the model from.
* Saving Methods:
  + How are 3D images saved?
  + OBJ - a simple data-format that saves the data of the position of each vertex, the UV position of each texture coordinate vertices and texture vertices, this is just data on the positions of each polygon.
  + 3DS - a 3D image format that contains mesh data, material attributes, bitmap references, smoothing group data, viewport configurations, camera locations, and lighting information and object animation data.
  + STL - STL could be "Standard Triangle Language" or "Standard Tessellation Language".

**Animation:**

* Keyframes - a drawing that defines the starting and ending points of any smooth transition.
* Tweening - generating extra frames between two key frames, to make the transition between them more smooth.
* Motion capture - recording the movement of objects or people.
* Wire Frame – viewing option that allows you to see an object in skeletal mode
* Coordinate systems (2D and 3D) - used to specify all locations in 2D or 3D space.
* Environmental Physics – simulation of the environment.
* Behavioural Animation - In behavioral animation an autonomous character determines its own actions, at least to a certain extent.
* Saving Methods:
  + How are animations saved?
  + SWF - an Adobe flash file format which contains videos and vector-based animations. The full abbreviation of SWF is Small Web Format but sometimes it is referred as Shockwave Format.
  + APNG - animated PNG files.
  + FLA - a program used to draw and publish interactive animations. They are often saved as SWF files for use on the web as they are viewable with the Flash plugin.

Task 2:

**11.1: P2 – Impact of using different tools and techniques to process and manipulate digital graphics and animations in digital formats**

|  |
| --- |
| Raster Graphics - GIF (256 colours, File size, Usability) |
| Each colour is described in RGB values, with a value from 0 to 255. This doesn’t count CMYK colours. Gif can use up to 16.8 million colours but only 256 can be found in an image. This is to limit the file size whilst retaining the appearance of the picture. |
| LZW compression is a lossless compression algorithm, it uses a dictionary-based algorithm that stores each similar colour together. A limit of 256 colours makes the file size smaller. It is usually smaller than 1mb. |
| A gif is usually a graphic for a button or icon. It can also be used for animations and are useful for anything with a transparent background. |

|  |
| --- |
| Vector Graphics - AI (Coordinate data, File size, Layers, Usability) |
| illustrator image files are saved in a vector format, they can be enlarged without losing any image quality. Some third-party programs can open AI files, but they will be converted to a bitmap format. |
| Project files let you save lots of layers of images, an AI file does the same thing for vectors. |
| It’s used by graphics designers and publishers. It can be used in animation storyboards and comics. |

|  |
| --- |
| 3D Graphics - OBJ (Coordinates data, File size, Usability) |
| It is usually generated by CAD and can encode surface geometry of a 3D model and can also store colour and texture information. |
| They cannot be compressed as they only store the locations of 3d objects (as XYZ coords), faces and vertices. File size can be big as it needs to store a lot of points, sometimes thousands. |
| It is the preferred format for multi-colour 3D printing and 3d graphics applications. |

|  |
| --- |
| Animations - .MPG (Compression, Frame rate, File size, Usability) |
| Mpg stands for moving picture group. It is a standard format that stores video, audio and metadata for a video file. |
| MPEG-1 is usually at 30 fps with a resolution of 352x240. MPEG-2 is used to compress video and audio for higher quality videos to be shown on the tv. MPEG-1 compresses files to 1.5 mbit/s, it is a lossless compression. |
| Mpeg is quite outdated and now is overtaken by mp4. They are normally used to rip movies from discs and dvd’s. |

Task 3:

**11.1: M1/D1 – Analyse and evaluate how the representation of digital graphics and animation in digital format impact on their usability and accuracy**

**Usability:** Compatibility, Presentation, File size

**Accuracy:** Representative of the original, Differences in colour depth, dpi, Degradation in quality

**GIF**

Print

* Usability – used by 2d printers but not 3d printers.
* Accuracy – low dpi can make lower quality.

Smart Phone

* Usability – works on modern phones but may not be compatible with older models.
* Accuracy – depends on screen size / resolution.

Television:

* Usability – depends on the manufacturer of the tv and if it is a smart tv or not.
* Accuracy – depending on the size of the tv it may fit perfectly or be stretched to fill the screen and look very bad.

**OBJ**

Print

* Usability – used by 3d printers. They are a 3d file format so they can’t be used on anything else.
* Accuracy – to print at a high quality a high polygon count would be needed so that the curves look more realistic.

Smart Phone

* Usability – if there is an app on the phone which can display 2d models it can be displayed, otherwise it will be incompatible. you can hook up external devices like a mouse and keyboard.
* Accuracy – you can use cad on this but without external devices it will be hard to use and slow, it is very limited as cad is intended to be used on a pc.

Television:

* Usability – you do not use them on a tv, you use a monitor.
* Accuracy – tv’s have a set resolution and do not have enough pixels to properly represent the 3d images and will look pixelated.

**MPG**

Print

* Usability – cannot be printed out or presented as it is a video type file format, if it is printed out it will only be a single frame and not a video as it is intended to be, because of this the file size will be as small as a jpg file. Jpg files can be used to make a flipbook though.
* Accuracy – it cannot properly represent the video as it will either not work or will be shown as a single frame (jpg or jpeg), there will be little to no difference in colour depth, depending on the resolution of the video file it could be a maximum of 720x480 if it is mpeg-2, there will be no degradation in quality as the picture will be the same unless the printer is of bad quality.

Smart Phone

* Usability – can be shown as a video saved or streamed from an app.
* Accuracy – the quality depends on how much the video was compressed, there is no difference in colour depth. It also depends on colour depth.

Television:

* Usability – can only be played on TV’s that can play video files like smart TV’s, if the file is burnt onto a disc it can be played through a DVD player.
* Accuracy – there may be a bit of upscaling for smaller resolution files but the quality would stay the same. it can be compressed but if the compression is lossy there may be a drop-in video quality.

Task 4:

**+11.1: P1/P2/M1 – Legal and Ethical Constraints**

* UK Copyright Law – what does it cover – all media and literary/artistic work.

how long does it last? 70 years.

* Age Appropriate Content – sexual content and drug use should be R18, excessive violence should be rated 15, less extreme violence should be rated 12 (if there is no blood such as robots fighting or power rangers).
* How they will be used - ethical and legal constraints should be used to make sure that content is suitable for its intended audience and that it, for educational purposes any content can be used without permission, but you can’t use them for commercial purposes (commercial without modifications) unless you have consent from the owner, in that case you can sell it and make money off of it. If it is commercial with modifications such as editing you need permissions from the owner or pay them money
* Use of content created by others – needs their express permission if it is copyrighted and they must be credited as the original owner of the work. If it is a film and is use on youtube it can only be shown for 7 seconds. If it is a song then sometimes you will have to credit the artist but other times you cant use it at all.