Unit 17: Digital Animation and Effects

Delivery guidance

This optional unit presents learners with the opportunity to explore digital animations and effects (both audio and visual) using industry standard tools and techniques.

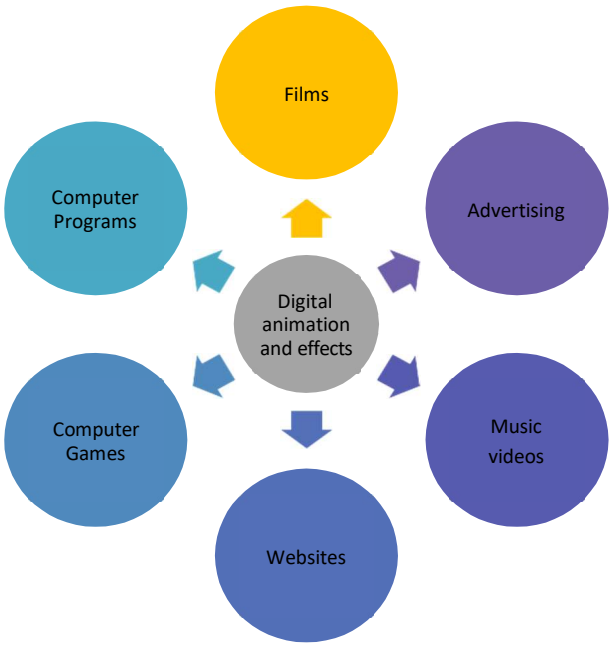
Digital animations and effects are typically key components in most types of modern media presentations, including websites, advertising, broadcast media and video games.

The key to creating attractive, engaging and commercially valuable digital animation and effects relies on three core skills:

- understanding the purpose and characteristics of digital animations and effects
- being able to interpret a client brief correctly to design a suitable digital animation and effects
- having the practical skills and appropriate workflow to develop designs into assets that are fit for the purpose.

The unit will give learners underpinning knowledge that helps them to investigate different forms of digital animations and effects, their commercial applications and the techniques and skills required to generate them confidently and creatively.

Learners should develop their visual communication, research and design skills, in order to effectively convert project briefs into practical ideas. They should be able to present ideas and evaluate work and decisions with peers and clients. Take opportunities to involve local employers as clients, as this will enhance both the project and learner experience. There are also many opportunities for you to link and embed learning aims with other technical units (even on different vocational routes as part of a wider learning initiative), for example, a learner could use their digital animation and effects to enhance film and theatre, as well as increasingly in art and design.



It would be ideal if the class or course had a forum or similar mechanism on the schools learning platform, or even a social media page/group, as this is a good way for learners to share some of their documented outcomes as recommended in this guide and in the scheme of work.

Approaching the unit

This unit lends itself to a three-fold approach to learning:

- research-based investigation into digital animations and effects, their respective purposes, impacts and relevant legal requirements
- free form and client brief-led planning for the creation of digital effects and exploring the techniques used for creating these
- practical skills-based production of digital animations and effects using commercially relevant software and hardware, as well as effectively evaluating against the original brief.

Learners are likely to enjoy the problem solving of interpreting a client brief and extending their practical skill set into the realm of producing digital animations and effects. While it is likely that learners may have some prior experience creating 2D and 3D digital graphics, their experience of the different animation forms may be limited.

Enhance each approach through the introduction of specifically selected case studies, engaging industrial visits, industry-led technical workshops, exhibitions and conferences, inspirational guest speakers and mentors (from local industry) and constructive peer review.

Many different software products exist to create engaging digital animations and effects. It is recommended that a variety of hardware (e.g. Apple and PC) and software (open source and proprietary) should be experienced where possible and that learners should explore the use of other digital capture devices, for example, camera, scanner, digital graphics tablet. You may even decide to include learners' mobile devices for a comparative effect.

Delivering the learning aims

Learning aim A

This aim investigates the purpose and characteristics of digital animations and effects that form an important part of visual communications.

As an underpinning learning aim containing the majority of the theoretical content for the unit, some can see this as challenging to engage learners. Encouraging the learners to understand the purpose of digital animations is best achieved through the use of relevant case studies such as those used in multimedia campaigns, which are current or have caught media attention recently (for good or bad). Naturally, discretion is advised when choosing subject matter to ensure that it should not offend, although this can prove to be a useful starting point for moderated discussion if it does.

You may find that group discussion, demonstration or presentation can be useful methods for examining the applications of digital animation and effects, pinpointing their use in TV programmes, films, video games, virtual reality, health and architecture by selecting appropriate examples, for example, 3D models and special effects in popular films and virtual tours of famous museums.

Learners should discuss current relevant examples for a wide variety of purposes (e.g.

education, entertainment). This gives an opportunity to review the types of animation used, and why they may have been chosen, for example, what effects were the creators trying to achieve?

Group-based projects can be a useful vehicle for encouraging learners to communicate ideas visually, particularly if they have time to critique their peers and self-evaluate. Some practitioners attempt to incorporate socially relevant themes as hidden learning when planning this type of activity. When the designs have been developed, this is also linked to learning aim C, *Develop a digital animation and effects product to meet a client brief*. It is important to note, however, that while group activities are a great learning tool, all assessment evidence produced must be the learner's own work.

Legal considerations are a highly important aspect within creative units such as this and should be given appropriate levels of attention.

The second sub-aim focuses on the basic principles of creating digital animations, including a variety of traditional 2D production techniques, 3D modelling and animation concepts. There are thematic links here with material that may be covered in other units within the specification (such as *Unit 1*) a blended, or at least 'signposted' approach can be helpful for learners.

Creating a 'Skills' certificate that provides learners with recognition when they have demonstrated the ability to apply different features and functions of the chosen software and the skills listed in the specification can be a fun way to introduce each new aspect, reinforce it and challenge friendly competition. An additional benefit in using this technique is that it is possible to track learner progress (and outcomes) in a very individualised fashion.

Throughout all aspects of this learning aim, building a visual dictionary of technical terms encountered to decorate the teaching space to support learners' retention is highly recommended.

Learning aim B

The second aim focuses on the design part of the digital animation and effects workflow and charts the processes and techniques that learners must consider when planning the production of such digital assets to suit the required specification.

Learners' designs should be in response to a given client brief. This is a good way to simulate target audience research, which will help improve the quality of the designs and the final product(s). Learners' should aim to use a range of tools when presenting ideas using including mood boards, storyboards and thumbnail sketches, as appropriate.

Learners' need to understand the various options for processing digital animations and effects before they practically apply them. As such, introducing learners' to the practical skills involved with the various digital animation and effects during learning aim A and learning aim B can be very insightful and lead to higher quality learner outcomes.

Throughout the design stage the learner should seek feedback from the client (and where possible test users) in order to refine the quality and appropriateness of the design. They should keep records. They should also understand the importance of documenting this process, by keeping records of feedback received and changes made, to contribute to the final evaluation.

Learning aim C

The final learning aim focuses on the practical development of the previously made animation and effect designs into final products that meet a client brief.

Broadly speaking, you can divide the content into three areas: an examination of tools with which learners should gain technical competence, the ability of the learner to review and evaluate their

final products (with input gathered from others) and the development of professional behaviours that demonstrate their personal growth in terms of skills, knowledge and behaviours.

Learners should be able to demonstrate the practical skills necessary to create and manipulate still and moving digital images, as well as application of animation techniques for a given purpose using the tools available in the selected application software.

Naturally, you should formatively assess these skills through in-class activities and/or homework self-directed tasks away from the classroom tasks before summarily assessing. Short and sharp testing works well here and may be suitable as a session's lead activity.

Due to the complex nature of some of the techniques and software used, additional in-class support and guidance is often required, particularly when working with more complex 3D animations.

The use of extra-curricular clubs for these skills can be a useful option for reinforcement and encouraging self-study.

Unless the offer is available in-house, you could also investigate whether a representative from an approved training provider delivering specific vendor-oriented study programmes could visit and give information about the courses and certification (particularly as some learners may opt to study such a qualification alongside or after completion of this course). Similarly, competency of sound and video editing skills should also be stressed.

Learners should be able to effectively review both their own efforts and those of their peers, typically through verbal critique and written feedback. You should encourage learners to benchmark their digital products against the client's requirements (the original brief), the overall quality of the image/model, any pertinent constraints (legal/ethical or technical, e.g. formats, frame rates, resolutions) and the level of optimisation that have been applied.

Evaluation and review benefits from repeated exposure; learners may be initially reluctant to give critical feedback in a constructive fashion. However, after routinely repeating the process at the end of a practical task, it soon becomes an intrinsic, normal and rewarding part of the learning process, demonstrating professionalism in their work. Some practitioners may feel inclined to incentivise, promoting 'Digital animation artist of the week' awards to recognise exceptional performance, for example.

High quality, accurate written and verbal communication skills are vital for progression into higher education and in employment. As such, learners should be confident in presenting thoughts and ideas to others and allowing learners to engage with a 'client' and test users, is a great way to develop this skill. It is a good experience for learners if a real-life client can be found, but this can be simulated with the Tutor, or other responsible adult, acting as the client. Learners should also produce well-presented, accurate and appropriate documentation for all stages of a project. Learners must be able to effectively evaluate the success of a project and the factors that contributed to the final outcome, including their own skills, knowledge and behaviours.

Assessment model

Learning aim	Key content areas	Recommended assessment approach
A Investigate the purpose and characteristics of digital animations and effects that are an important part of communication	**A1** Purpose of and legal requirements for digital animations and effects **A2** Techniques for and principles of creating digital animations **A3** Principles of creating digital effects **A4** Hardware and software tools for digital animations and effects	A report on the purpose and characteristics of digital animation and effects products, including how the technical characteristics impact on the product. The characteristics include legal requirements, animation and effects principles and hardware and software tools used to create the digital products.
B Design a digital animation and effects product to meet a client brief	**B1** Planning products incorporating digital animations and effects **B2** Design documentation for digital animations and effects products **B3** Reviewing and refining designs for animations and effects	A design specification showing the planning and design of an animation and effects product that could be used in a larger media product. Digital animations and effects files that fulfil the design specifications, accompanied by supporting development and testing documentation. An evaluation of the digital animation and effects product against the client's brief. The product may be developed for inclusion in a larger media product, such as a computer game. A record of personal performance while completing the activity such as whether work was submitted on time.
C Develop a digital animation and effects product to meet a client brief	**C1** Tools and techniques for digital animations and effects **C2** Creating a digital animation and effects product **C3** Testing animations and effects **C4** Reviewing the final digital animation and effect product **C5** Professional behaviours	

Assessment guidance

The assessment for this internally assessed unit would benefit from being divided into two assignments as shown in the table.

This section gives only an overview of the assessment requirements. Centers should refer to the *Essential information for assessment decisions* and *Assessment criteria* sections of the specification for specific and detailed assessment requirements

Assignment 1 (learning aim A)

A thoroughly researched report, possibly similar in style to a digital animation magazine-style article or learner-led presentation, focusing on of how the characteristics of the animation and effects products impact on their purpose, usability and accuracy.

Learners' enquiries will lead to a supported judgement, showing relationship to its context.

Offering learners a choice of presentation medium for their evidence will often encourage individual thinking and allow them to embrace the various possibilities presented by the medium chosen, for example, integrating interactive 3D assets into their presentation or including specifically created 2D art in a magazine article.

Things to remember to offer the best opportunity for learner success:

- Learners must include coverage of the different types of digital animation products (both 2D and 3D), using technical language accurately in their descriptions.
- Learners should evaluate the use of animations and digital effects in a range of different products (e.g. video games, web adverts, user created short films) and their purpose (entertaining users, providing information). Learners that are more able should be able to make links between the underlying need for animation and effects and how they can be achieved most effectively.
- Learners should explain the purpose and legal considerations when creating digital animations and effects.
- If the report format is selected, it would ideally follow a recognised format (either formal or informal) and should be presented as a professional business document, with consistent use of correct grammar and spelling and correct referencing of information sources.
- Access to appropriate hardware, software and tutorials is required in order for learners to create bespoke assets for their animations or customise existing ones.
- Learners will need to access a range of both published and online sources to provide the academic content.
- Learners should develop their evaluation skills through clearly identifying the strengths and weaknesses in their work, as well as how their work clearly meets the brief. This should not simply be descriptive.

Assignment 2 (learning aims B and C)

Ideally, you could link this assignment with other units to form part of an integrative assignment. Examples could include building assets (animations, presentations, videos etc.) for a customer's website, creating graphics and sound effects for an interactive game or assets for use in a mobile app. If an integrated assignment is used, remember that in order to assess against a unit's assessment criteria the learner must ensure that the evidence given fully meets the requirements as outlined in the unit. For example, if combining this unit with the *Mobile Apps* unit when 'reviewing designs' the evidence for this unit must specifically focus the review on the animations and effects, and the *Mobile Apps* unit would need to focus on the app.

Alternatively, the use of a 'live' industry brief from a sponsor or mentor can give fertile ground for creative efforts. Where possible, it should include hidden learning that can support progress in other units and afford some inter-curricula links.

The task/brief must involve the design and creation of digital animation and effect assets that should be fit for a given purpose.

Things to remember to offer the best opportunity for learner success:

- Learners should demonstrate evidence of research that is pertinent to the client brief, generating a range of potential designs for each digital product required. Learner notes that justify their decisions through a clear understanding of core digital animation and effects design principles, the intended audience and purpose should accompany each design.
- Once final designs have been selected, these should be developed using appropriate hardware and software tools. Expect the learner to document each part of the creation process, providing detailed explanation of the tools and techniques used with a rationale.
- Completed animations and effects need to be evaluated and optimised by the learner against the client brief and should draw upon the technical standard of the final product, the range of techniques used and how closely they have resolved the client's requirements.
- You should also expect higher achieving learners to demonstrate their individual responsibility, creativity and self-management during the process. Keeping records of the meetings with, and feedback from, users and the client are a good way to help support the evidencing of this
- Access to appropriate hardware, software and tutorials is required in order for learners to create bespoke images or customise existing ones.
- Learners will need to access a range of both published and online sources to provide the academic content.

Getting started

This gives you a starting place for one way of delivering the unit, based around the recommended assessment approach in the specification.

Unit 17: Digital Animation and Effects

Introduction

Introduce this unit by ascertaining the learners' experience with digital animations and effects (most will be limited to 2D products) and detail the full expectation of the unit's outcomes and the skills (and professional behaviours) the learners will develop before its completion.

Use of previous cohorts' work (if available) is a very useful touchstone for new learners, especially if they compare favorably with commercial examples, as they will inspire and give realistic targets to which they may aspire. Providing examples of well-known examples of digital animations and effects is a sound tactic, especially examples from popular media, such as film, TV, advertisements and video games.

You may consider measuring initial learner skills by using a simple, skills and behaviours audit, which will allow for the creation of individualised starting points based on prior experience. This would help you manage practical sessions more appropriately, spending limited support time in the most efficient manner. It would be beneficial to learners to deliver content in learning aim C5 in an imbedded manner throughout the programme of learning. You should repeat the audit process at the end of the unit to measure the distance travelled.

You may also consider appointing (or asking for volunteer) learners with more experience to act as classroom support.

Learning aim A: Investigate the purpose and characteristics of digital animations and effects that are an important part of communication

A1: Purpose of and legal requirements for digital animations and effects

You will detail the purpose and legal requirements of digital animations and effects. Legal requirements should be relevant to the region in which the course is being delivered, although encouraging a wider geographic awareness in learners is recommended. This learning aim A1 should take approximately 4 hours.

- Define the key purposes of digital animations and effects:
    - conveying information, messages and meaning to a target audience
    - visualise, communicate, verify and evaluate potential ideas to a target audience.

  Use of case studies can be particularly helpful here, particularly mixing examples that have been successful and those that have not (for contrast). Common examples could include TV advertisements, video game cut-scenes, film trailers, multimedia advertising campaigns etc., particularly where a change of artistic direction can be evidenced. These types of activities often give opportunities for open group discussion on the merits (and otherwise) of the digital animations and effects created and how they were used (and their effectiveness and impact on the target market/audience). Practical activities such as market research are a possibility.
- Present the current and relevant regional legal requirements for digital animations and effects:

- Use of case studies, focusing on prominent infringements and settlements covered in the press offer a good starting point for group or round-table discussion.
- This should minimally include those covering defamation, licensing requirements, copyright, designs and patents. Particular emphasis should be placed on adapting content created by others, including derivative use.
- The use of classroom 'courts' with learners role playing the various parts (defendant, prosecution, defence, jury, expert witnesses) and you as the Judge can be particularly effective when paired with the legal frameworks relevant to this subject (see specification for recommended list).

A2: Techniques for and principles of creating digital animations

You will lead learners through the different animation techniques commonly used.

Learning aim A2 should take approximately 6 hours.

- Demonstrate basic frame-by-frame animation using commercial software, encouraging learners to note new terms they encounter. Task learners with building a basic frame-by-frame animation of their own choice, e.g. using traditional animation, live action, rotoscoping techniques.
- Skills based workshops that use a 'Demonstrate – Practice – Challenge' structure to delivery is a good way to focus on the development of the production and modelling techniques listed in the specification. With this approach you are encouraged to:
  - demonstrate the identified technique to learners
  - allow time for the learner to practice the identified technique
  - challenge them to use the technique in a practical piece of work in response to a simple scenario/brief.
- Learners could be introduced to software applications such as open source Pencil2D or commercial Adobe Animate CC. Blender is a free 3D animation tool and the Autodesk suite is also free to use with an educational license. These will give learners a broad overview of free and industry standard software.
- Learners could investigate and document the differences between techniques used in animation production, how they are applied and the relative benefits and drawbacks of each.
- Learners to investigate and document different file formats available, comparing and contrasting their advantages and disadvantages.
- Demonstrate basic 3D modelling techniques, including basic vector shapes and different texture methods. Introduce the coordinate system, object hierarchy and pivot points used for rotation and scaling.
- The principles of vector images and animation crucially involve common geometric shapes (vertices, lines, curves, edges, polygons and meshes) and, combined with the use of coordinate geometry, again offer firm (and practical) links to mathematics that can be explored by learners.
- A good tactic when teaching these aspects of geometric theory is to encourage learners to break down everyday objects (e.g. an ice-cream, Star Wars' R2- D2, smartphone) into their simple geons and in doing so should encourage the learners to describe these objects in a professional manner using the correct geometric vocabulary.

Learners can then practise building these simple everyday objects using your chosen 3D

design software by using appropriate mesh construction and rendering tools, which they can then animate and/or apply digital effects to.

- Demonstrate animation trajectories for creating, adjusting and converting motion paths for 3D objects.
- Explore the differences between inverse and forward kinematics and provide commercial examples (video game footage provides a rich source for this).
- Demonstrate the use of animation layers in 3D workflows and how simple morphing effects can be achieved.
- Lead practical learner mini-workshops for practical 2D and 3D animation. Set discrete tasks with ascending orders of technical difficulty to set suitable stretch and challenge targets for learners. Learners should work individually but some tasks reward a pair-based pilot/navigator-style approach to problem solving.
- When exploring techniques and practicing skills draw learner's attention to the impact that these have on the usability and accuracy of digital animation and effects. You should explore 'What' happens and 'Why', as well as the broader implications.

A3: Principles of creating digital effects

Learning aim A3 should take approximately 4 hours. You will present, demonstrate (where possible) and discuss the basic principles of creating digital effects (visual and audio).

- For visual effects:
  - motion tracking, including tracking the movement of objects and applying tracking data to other objects
  - motion capture, including recording movement and actions, 3D recreation
  - performance capture
  - compositing, including live action, animated, background
  - animated effects
  - augmented reality, e.g. video games, navigation devices, architecture
  - virtual reality, including virtual reality games and experiences, e.g. museum tours.
- Many examples of motion tracking and captures can be found on popular video- sharing websites, particularly those that document the creation of computer- generated characters in films and video games. Many mobile devices support the use of augmented reality, both in terms of applications and simple creation suites. Virtual reality headsets and development kits are available for a multitude of devices, including smartphones, PCs and various video game consoles, often with educational discounts.
- Demonstrate the practical skills required for audio effects, including:
  - synchronising audio, including lip-synching, onscreen movement, actions
  - mixing sound, including levels, normalisation, equalisation, e.g. peak, high shelf, low shelf, high pass, low pass
  - compressing sound recordings, e.g. remove flawed, repetitive, superfluous audio material
  - combining sound effects, atmospheric/ambient sound, music and dialogue.
- Explore the benefits and drawbacks of producing your own sound files for use in products in

contrast to the use of content created by others.

- Discuss the impact of visual and audio effects principles on the usability and accuracy of digital animation and effects. Using suitable examples, task learners with comparing file formats, sound consistency, colour combinations and user engagement.

A4: Hardware and software tools for digital animations and effects

You will establish the range of software and hardware tools commonly used in the development of 2D and 3D digital animations and effects, specifically those that capture, processing images internally, noting the impact on development and the finished product. This learning aim A4 should take approximately 5 hours, but it is possible to amortize some time from combining with Unit 1's Assessment Outcome area A1 – *Digital devices, their functions and use*. This can also be combined with some the content from *Unit 16 Digital 2D and 3D graphics*.

- Lead a practical session to capture, process and output digital animations and related assets using digital devices. Personalisation will allow learners to capture images from their own smartphone cameras.
- Explain the role of the internal hardware components in image storage and processing, e.g. graphics card, random-access memory (RAM), high-speed cache and central processing unit (CPU). You should explore the impact different types of file or effect have on the systems performance, the role the identified component will play and how the specification of the identified component helps improve/support system performance.
- The relationship between hardware, files and performance should be explored in relation to the intended use case of the animation/effect. For example, what would they need to consider when outputting to a standard screen, as a hologram etc.
- Learners should also make some (introductory) practical use of different types of software applications to manage and manipulate the images they have captured, e.g. 2D/3D animation editors, audio/visual effect editors and file conversion tools. At this point, learners should be expected to identify the range of commercial software available and describe their purpose, functionality and features. These categorisations need to be goal-based; learners need to know which software product will help them to complete a particular task, e.g. adding computer- generated effects to pre-existing video.

Demonstrate and compare the impact that hardware and software tool selection has on the usability and accuracy of digital animation and effects. Using suitable examples, task learners with comparing output formats, rendering times, image resolution, frame rates, output size, aspect ratio and the optimisation of colour depth.

Learning aim B: Design a digital animation and effects product to meet a client brief

B1: Planning products incorporating digital animations and effects

Lead class discussion that encourages learners to think about the processes and techniques to consider when planning the production of digital animations and effects. This learning aim B1 should take approximately 3 hours.

- When considering any design choice you should direct the learners' focus towards the image quality requirements and technical constraints as well as aesthetic choices. For example, the file formats preferred (in terms of wider compression and compatibility) and the processing and editing techniques required to achieve the desired outcomes (this could be done by giving learners small group scenarios, e.g. billboards with animations, TV shows, website animated graphics and choosing/presenting the appropriate solution; here, learners will have to look at file types, quality versus size etc.).
- Having a strong grasp of the practical skills required before any design work is undertaken can greatly improve outcomes.
- Learners typically have to be convinced that documentation is an important part of any design, to be completed with the same level of care and attention as the digital graphic. This fact is not limited to digital graphic work so the need can be thematically linked to other disciplines, for example, computer programming. Each learner should be aware of the items that comprise design documentation for the subject, knowing how to generate each aspect professionally and its defined purpose.
- Issue learners with a client brief from a suitable case study.
- Ask learners to consider the source of the specification.
- Explore different techniques for generating ideas, e.g. brainstorming, presenting ideas using mood boards, storyboards and thumbnail sketches.
- Ask learners to provide an overview of the different processing and editing techniques that they think would be required to produce the target animation or effects.
- Discuss the various file and compression formats, selecting (with justification) the most appropriate for the task.

B2: Design documentation for digital animations and effects products

You will detail the documentation that learners need to generate for their digital animations and effects designs. This learning aim B2 should take approximately 5 hours.

- Walking learners through a model set of documentation produced for a client brief is a good starting point. The use of previously completed learner work is often very illuminating and can help set the bar for new learners.
- Getting learners to use example design documentation in practical activities to create images is a good way to show learners the importance of the detail needed. Consider providing learners with incomplete or poor-quality design documentation that they have to use to inform the creation of an image for a given purpose. You can then discuss the difficulties they encountered when trying to create an appropriate product.
- Demonstrate the different elements that form part of the design's documentation,

e.g. client brief, research, market research, technique planning, themes and aesthetics, legal and ethical considerations, story ideas, pre-production paperwork etc. (as listed in the specification).

- Demonstrate concepts such as key frames, timing, frame identification (numbering or naming), frame rate (frame consumption and smoothness of animation), dope sheets and long sheets etc.
- Provide guidelines for documentation elements, such as hardware and software requirements, specifically those required for capturing, creating or modifying animation and effect assets.
- Discuss legal and ethical requirements that should be included, e.g. copyright acknowledgements/notices, release forms and considerations of ethical, representational and decency issues. Try to cover these by highlighting bad examples where such issues had not been considered thoroughly and the resulting product has received legal, public or critical backlash.
- Encourage learners to consider and discuss technical constraints that may limit the product potential.
- The use of a checklist by learners covering the design documentation requirements listed in the specification is a good way to ensure learners consider all potential aspects even if in some scenarios not all requirements need to be covered.
- Using a sample client brief, allow learners to problem solve and design a solution within a set time limit after which they can then present their efforts. In terms of formative assessment, focus on the presence, depth and range of the documentation elements produced more than the actual quality of designs (for now, as these will almost certainly improve through the programme).

B3: Reviewing and refining designs for digital animations and effects

Help learners to review and refine their designs by introducing learners to the process of working with clients and others to improve their quality, effectiveness and appropriateness. This learning aim B3 should take approximately 3 hours.

- Ensure learner communication skills are at the appropriate level before tackling this outcome. This should include all popular forms of communication, e.g. letter, email, telephone call, voice or video conferencing, personal interview. Remember to place additional emphasis on non-verbal communication, especially when learners are receiving feedback from the client.
- Discuss techniques for gathering feedback from clients and users, e.g. email, interview, surveys, monitoring social platforms and usability tests. Where possible, clients should not be directly associated with the programme; internal clients from within the institute are an acceptable substitute. Leveraging social media is a good way to engage with local companies to find suitable learner-friendly client briefs.
- Arrange, moderate and support client/learner role play that aims to encourage learners to accept constructive feedback from stakeholders and refine their designs accordingly.
- Demonstrate how timescales can be renegotiated and adjusted as ideas and solutions are refined based on feedback and updated designs.
- Ask learners to update their design specifications based on the feedback received.
- Review the changes made.

Learning aim C: Develop a digital animation and effects product to meet a client brief

C1: Tools and techniques for digital animations and effects

This learning aim C1 should be delivered in parallel with learning aim C2. Together the learning aims should take a total of approximately 20 hours plus additional self-study to hone skills appropriately.

You will facilitate the learner's ability to use appropriate tools and techniques to create digital animations and effects.

- Learners should be given time to develop their software-based skills. This could be achieved through a combination of focused class activities to teach specific techniques, workshops that are more open and explore wider concepts, as well as self-directed study using online tutorials or other similar materials.
    - Introduce each tool and technique specified for digital animations and effects, explaining its purpose and application. If you have time, you may enrich this suggested list.
    - Provide instruction and/or written, video, pilot/navigator-style support for each learner as they prefer. Issue a personalised plan to each learner with individualised targets.
    - Monitor and support learners throughout, utilising trustee classroom assistance as necessary.
    - Allow learners to upload their resulting efforts to a class-accessible gallery.
    - Moderate peer critique on each learner's effort.
    - Record helpful tips collected by learners when using the tool/technique.

Skills such as the ability to freehand draw can be difficult to encourage and develop in IT learners, but persistence will usually see most learners attain a reasonable level; the use of graphic tablets may be preferable for some, offering a viable alternative to the scanning of traditional hand-drawn imagery.

Creating a checklist of the standard skills set for 2D and 3D animation and digital effects creation is generally a good idea, supported through online tutorials (VLE or web-based), which learners can practise at their own pace and even in their personal time; not all learners will accumulate these skills in the same order or pace so flexible delivery, perhaps learner-led, is a useful option.

C2: Creating a digital animation and effects product

This learning aim C2 should be delivered in parallel with learning aim C1. Together the learning aims should take a total of approximately 20 hours plus additional self-study to hone skills appropriately.

You will detail the desired workflow associated with creating a digital animation and effect products by:

- supporting learners as they create readymade assets that can be used for compositing, i.e. generating the filmed or rendered elements from multiplesources that will be combined to create the desired animation

- demonstrating how to import readymade assets into a project
- discussing the correct management of original and readymade assets
- demonstrating how layers and assets can be combined together to create an effect
- revealing how visual and audio effects can be added to enhance the product.
- using a mini-project as a vehicle for this type of activity, tasking learners with working on a narrowly defined client brief that enables them to be shepherded through the correct workflow with a minimum of technical differentiation. Sessions are likely to be highly practical in nature, with learners perhaps initially working in pairsor small groups depending on the complexity of the task and the resources available. Supporting resources such as handouts, video tutorials and classroom technicians may be beneficial.

C3: Testing animations and effects

This learning aim C3 should take approximately 3 hours.

You will detail the testing of digital animations and effects by:

- demonstrating to learners how digital animations and effects are tested. Differentiate testing techniques used to assess functionality, compatibility,stability and acceptance
- introducing the practicalities of testing digital products against the client brief, especially with regard to target audience and specific purpose. A useful technique is to place the learners in the position of giving constructive feedback to a sample animation and/or effect and collecting their responses using different feedback mechanisms.
- discussing techniques for obtaining useful feedback from others, e.g. focus group, questionnaire, interactive polling, directed question and answer, email, website survey. Identify relative advantages and disadvantages for each technique anduse this to openly debate which feedback collection technique may be most effective (and why).
- showing how animations and effects can be improved in response to testing and feedback, e.g. critique from others helping to identify unconvincing or rough elements in an animation, which could be smoothed out or edited more tightly to achieve a better standard.

C4: Reviewing the final digital animation and effect product

You will lead and moderate reviews of final digital animations and effects by the learner, learner peers, their clients and other interested parties. This learning aim should take approximately 3 hours.

- Learners produce an electronic gallery of their digital animations andvisual/audio effects work.
- Invite open critique from learner peers, clients and other stakeholders.
- Incentivise, promoting 'Digital animator of the week' awards (or real prizes) to recognise exceptional performance, for example.
- Learner should personally review each digital animation and visual effect theyhave created using the recommended checklist (see specification) and feedback from others.
- You should expect learners to use technical terms correctly during the provision of feedback. Do not forget to tease out other judgements about the digital animation and effects from the learners, including its perceived strengths, weaknesses and how it can be

improved (from a technical standpoint and in order to correctly fulfil the client brief).

- Encourage learners to consider legal and ethical requirements and the technical constraints that have influenced each product.
- Ideally, place selected learner work on display at key locations around the institution and organise a retrospective exhibition of the best work at the end of the programme.
- Where possible and permissible, keep copies of a range of learner work to use with the next cohort.

C5: Professional behaviours

Help learners to reassess their professional behaviours. This learning aim C5 should take approximately 2 hours.

- You should now reissue the skills and behaviours audit completed by learners in the first session so that they can revisit the document and make additional observations about where and how they feel they have improved. Learners may also find it useful to reference their ILPs when completing this task.
- Throughout the learning aim, ask learners to self-reflect on their performance and their overall approach to the tasks that they complete. You could encourage them to use tools such as SWOT analysis to identify their strengths and any areas for improvement.
- It will benefit learners to maintain a diary or take notes as they complete the various practical activities in the lessons relating to this learning aim. They should also note the comments that their peers make when they give feedback.
- Learners should use the internet (or the centre's own learning centre resources if any exist) and identify sources such as videos or other materials that would help them to improve the skills they identified as needing improvement. A combined list of resources from all learners should be published and/or shared by the class.

Details of links to other BTEC units and qualifications and to other relevant units/qualifications

Depending on the choice of project, the following units will provide useful underpinning knowledge and skills that can be drawn on to create the deliverables:

- *Unit 6: Website Development*
- *Unit 7: Mobile Apps Development*
- *Unit 8: Computer Games Development*
- *Unit 16: Digital 2D and 3D Graphics*

Resources

In addition to the resources listed below, publishers are likely to produce Pearson-endorsed textbooks that support this unit of the BTEC Nationals in Information Technology. Check the Pearson website (http://qualifications.pearson.com/endorsed- resources) for more information as titles achieve endorsement.

Textbooks

Blain JM, *The Complete Guide to Blender Graphics* (3rd Edition), CRC Press, 2016 (ISBN 9781498746458) – delving deeper into the process of creating 3D models in Blender.

Brinkman R, *The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation and Motion Graphics* (2nd Edition), Morgan Kaufmann, 2008 (ISBN 9780123706386) – case studies of digital compositing work performed in popular films.

Derakhshani D, *Introducing Autodesk Maya 2016*, John Wiley & Sons, 2015 (ISBN 9781118862841) – introductory text with good examples of working with industry-popular 3D software.

Faulkner A and Gyncild B, *Adobe Photoshop CC Classroom in a Book (2014 release)*, Adobe Press, 2014 (ISBN-10 0134308131, ISBN-13 9780134308135) – A primer for working with raster images using industry-standard software.

Fridsma L and Gyncild B, *Adobe After Effects CC Classroom in a Book 2017* (Pap/Psc edition), Adobe, 2017 (ISBN 9780134665320) – step-by-step introduction to the popular digital visual effects and compositing application.

van Gumster J*, Blender For Dummies*, John Wiley & Sons, 2015 (ISBN 9781119039532) – getting started building 3D models in Blender; assumes no prior experience.

Jago M, *Adobe Premiere Pro CC Classroom in a Book (2017 Release)*, Adobe, 2017 (ISBN 9780134665313) – step-by-step guide to the popular video editing and mixing application.

Schroder C, *The Book of Audacity*, No Starch Press, 2011 (ISBN 9781593272708) – guide to the cross-platform audio editor which demystifies its technical jargon.

Wright S, *Digital Compositing for Film and Video*, Focal Press, 2010 (ISBN 9780240813097) – tips, techniques, and solutions for dealing with commonly faced compositing obstacles.

Journals

3D World Magazine

Animation Magazine

Computer Arts Magazine Computer Graphics World

ImagineFX Magazine

Videos

For useful tutorials, visit YouTube and search for the following:

'Adobe Photoshop Tutorials'

'The Best Adobe Premiere Pro Quick Tips'

'Blender 2.7 Tutorial series'

'Blender Guru series'

'Free Audacity Tutorials'

'Maya How Tos'

Websites

Adobe After Effects: a digital visual effects, motion graphics, and compositing software application.

Adobe Premier Pro: a timeline-based video editing software application.

Audacity: a free, easy-to-use, multi-platform multi-track audio editor and recorder.

Autodesk Maya 3D: professional 3D computer modelling and animation software.

Open Source 3D creation suite: free downloads, FAQ, user community, user galleries and tutorials.

Creative Skillset: works with the UK's screen-based creative industries to develop skills and talent, from classroom to boardroom, supplying advice, industry news, information on courses and job roles.

Pearson is not responsible for the content of any external internet sites. It is essential for tutors to preview each website before using it in class so as to ensure that the URL isstill accurate, relevant and appropriate. We suggest that tutors bookmark useful websites and consider enabling learners to access them through the school/college intranet