



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM518A Animate physical attributes of models and elements

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICA11 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to animate appropriate physical attributes of models and elements.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</i>

Elements and Performance Criteria

1. Collect and use reference material	1.1 Create storyboard sequence of required animation 1.2 Determine animation attribute sequence of objects as per the storyboard 1.3 Select 3-D modelling and animation software tools that best suit the type of production and target platform for which 3-D digital animations are being created 1.4 Research and gather reference material to inform the animation process
2. Prepare 3-D digital models using a variety of manipulating techniques	2.1 Determine the most efficient animation methodology 2.2 Ensure that the models topology allows appropriate deformation of objects and its parts as per storyboard animation brief 2.3 Apply a variety of manipulation techniques 2.4 Progressively refine animation attributes and check integrity of models and elements over time until storyboard requirements are met 2.5 Submit pre-models animation to relevant personnel for comment on whether storyboard objectives have been met and make final adjustments as required
3. Create required animations using a variety of animated tools	3.1 Determine the most efficient animation methodology from the required models 3.2 Animate object, applying animation principles and techniques to produce the required motions 3.3 Submit animation for approval 3.4 Make adjustments as required and refine animation in passes until storyboard requirements are achieved
4. Use lighting to evaluate texture, quality and performance	4.1 Use nominal lighting to render component for testing purposes 4.2 Test against plan 4.3 Continue manipulation process until effect achieved
5. Render 3-D digital model using appropriate render engine	5.1 Evaluate the final render, taking steps to satisfy any further client requirements 5.2 Prepare render passes if any 5.3 Render component 5.4 Present edited material to the relevant personnel as well as brief and documents, including concept art in an appropriate

	format for evaluation
6. Back up work	6.1 Make backup copies of files and complete workplace documentation according to chosen predetermined procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
 - analyse documentation and images to inform implementation of game specifications
 - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
 - check and confirm design requirements
 - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
 - communicate complex designs in a structured format drawn from industry standards, styles and techniques
 - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
 - provide practical advice, support and feedback to colleagues and management
 - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- literacy and numeracy skills to develop 3-D design and technical design documents
- planning and organisational skills to:
 - appropriately refer decisions to a higher project authority for review and endorsement
 - balance talent, experience and budget
 - delegate tasks and responsibility appropriately
 - establish clear roles and goals to achieve required game development outcomes
 - meet project deadlines
 - organise equipment and resources to achieve required outcomes
 - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- technical skills to:
 - develop and visualise concepts
 - use correct file formats and archiving procedures
 - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- 3-D animation
- 3-D lighting
- 3-D modelling
- anatomy and physical movement
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines

- client communication
- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- dope sheets
- graph curve editor
- human resources required in the process of creating a game and their respective skills and technology requirements
- methods for using reference material
- OHS requirements for:
 - ergonomics
 - electrical safety
- physical attributes to create effects, such as weight and anticipation
- rendering
- risk and critical path management
- scheduling production components
- shading
- texturing
- techniques for using storyboard and script production
- time management
- transfer methodology, e.g. rotoscope, hand key, motion capture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • use 3-D software toolsets to animate models with correct movement and weight • undertake reference and transfer methods to copy real physical attributes.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • verbal questioning regarding reasons for use of hardware and software to create physical attributes effects • direct observation of the learner using 3-D animation software • review of project or work activities that show research and reference sourcing to gain best physical attributes effects • review of written and verbal reports or documentation showing research and production plan • review of third-party workplace reports of skills and performance of the learner • evaluation of completed rendered image or sequence.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

	background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.
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Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

3-D modelling and animation software may include:	• 3-D Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Target platform may include:	• arcade • console platforms: • Microsoft Xbox 360 • Nintendo DS (hand-held) • Nintendo Wii • Sony PlayStation • hand-held digital device platforms: • Apple Iie/C/C+ • Apple IIGS • Blackberry • BREW • Flashlite • Google Android • J2ME • Java • Palm OS • Sidekick • Symbian • WAP • Windows Mobile • personal computer (PC) • web.
Reference material	• blueprints • developmental drawings

may include:	• internet research • museum information • orthographic images • photographs • schematics • video footage.
Manipulation techniques may include:	• cloning • deforming • exploding • melting • moving • point and face deformation • rotating • scaling.
Brief and documents may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.

Unit Sector(s)

Game development