

Standards and Assessment Guide

3D Digital Game Art

Introduction

Welcome to the Standards and Assessment Guide (SAG), a comprehensive resource designed to support excellence in assessment practices for all skills competitions hosted at the WorldSkills Competition. A key component of the SAG is the commitment to continuous improvement through ongoing review, ensuring that these guides consistently reflect the latest industry innovations and high standards of assessment in an open and transparent manner.

Purpose

The primary purpose of this guide is to provide a structured framework for the consistent and fair assessment of each skill competition. It aims to ensure that all assessments are conducted with a high degree of accuracy, reliability, validity, and reflect global industry standards. By adhering to these guidelines, assessors can maintain the integrity of the competition and uphold the high standards associated with WorldSkills.

Note: this guide is not a replacement for the Marking Scheme and should only be used as a reference when required during the assessment process. Competitors are not allowed to have a copy of this SAG in the workshop in either digital or paper form.

Scope

This document covers general assessment practices applicable to a diverse range of industry sectors including:

- Manufacturing and Engineering Technology
- Information and Communication Technology
- Construction and Building Technology
- Transportation and Logistics
- Social and Personal Services
- Creative Arts and Fashion

Each skill competition has its unique requirements and benchmarks, which are detailed within sections of this guide. The consistency of assessment across each skill is the overarching principle, ensuring a unified approach to evaluating Competitor performance to the highest standards.

Key Components

The guide is structured into several key components, each addressing critical aspects of the assessment process:

Assessment Principles and Objectives

- Emphasis on fairness, transparency, and objectivity in assessments.
- Alignment with global industry standards and best practices.

Assessment Methods and Tools

- Description of various assessment methods in Measurement and Judgement.
- Guidance on the application of appropriate assessment tools and equipment (if applicable).

Criteria and Benchmarks

- Examples of assessment criteria and aspects for each skill, outlining the expected competencies and performance standards.
- Benchmarks for different levels of proficiency i.e. Judgement award range 0, 1, 2, 3 or Yes/No criteria alongside clear measurable descriptors.

Expert assessment requirements

- Completion of the Access Programme.
- Approved Curriculum Vitae (CV).
- Reaching **100%** Expert preparedness.
- Full participation of online and in-person Mandatory Assessment Training (MAT).
- Completion of practical assessment testing at the Competition.

Quality Assurance and Improvement

- Monitoring and evaluation: Ensuring assessments are carried out correctly and produce reliable results.
- Continuous improvement: Using feedback from Experts and Skill Competition Managers to enhance future assessments.
- Periodic review: Regularly updating processes to reflect current industry and WorldSkills standards.

Implementation

For effective implementation, this guide should be used for guidance purposes only and in parallel with the Technical Description for each skill. Experts are encouraged to familiarize themselves thoroughly with both the general guidelines and the particular requirements of their respective skill areas. Collaborative efforts between the Skill Management Team, Experts, and Competitors are vital for achieving the ultimate goal of global skills development.

Conclusion

The Standards and Assessment Guide embodies the commitment of the WorldSkills movement to nurturing talent and promoting the highest standards of vocational education and training worldwide. By providing clear and comprehensive guidance, we aim to empower Experts to conduct marking and assessment practices that are not only rigorous and equitable but also inspiring and transformative for all participants.

Thank you for your dedication to upholding these standards and contributing to the success of the WorldSkills Competition. Together, we can continue to champion skills excellence and celebrate the achievements of talented individuals from around the globe.

Skill 50 – 3D Digital Game Art

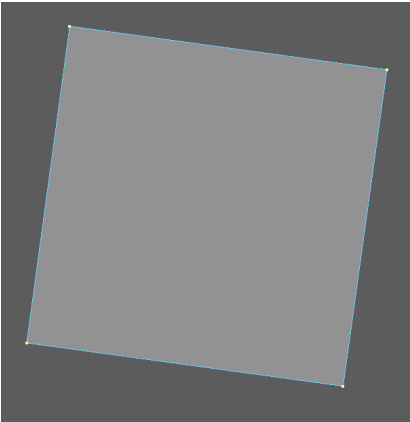
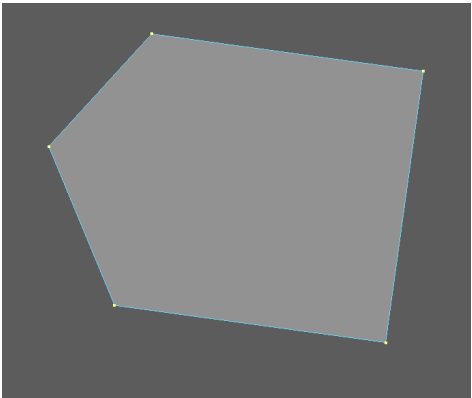
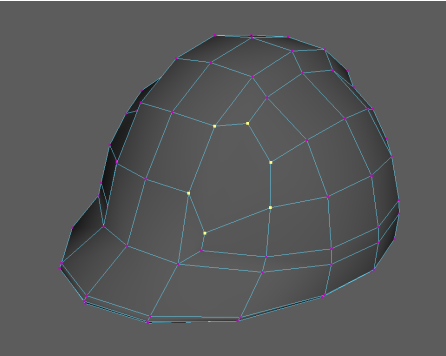
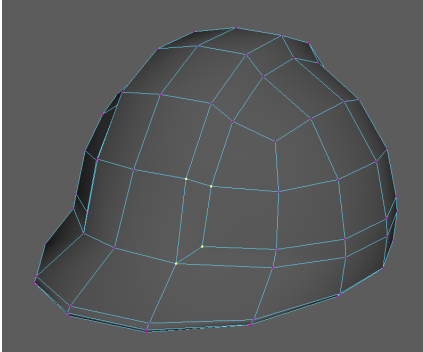
Measurement

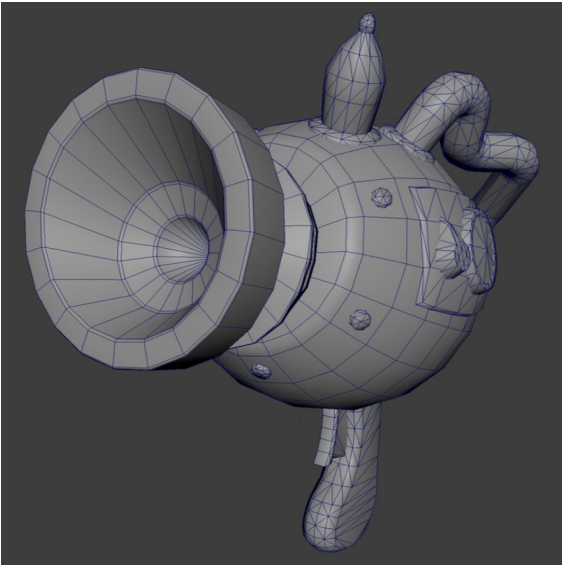
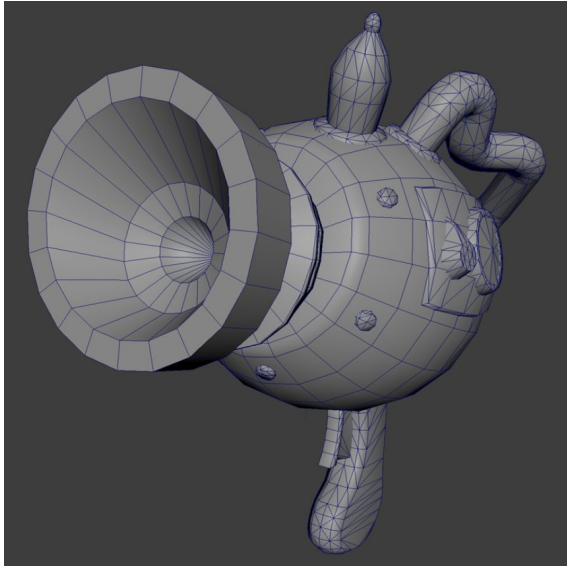
Measurement is used to assess accuracy, precision, and other performance that can be measured objectively. It is used where ambiguity must be avoided.

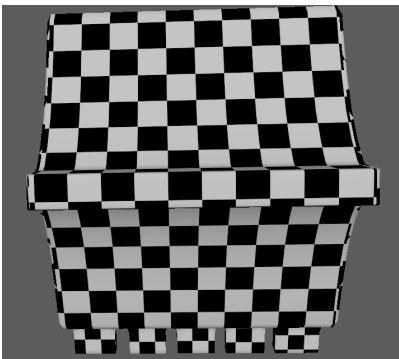
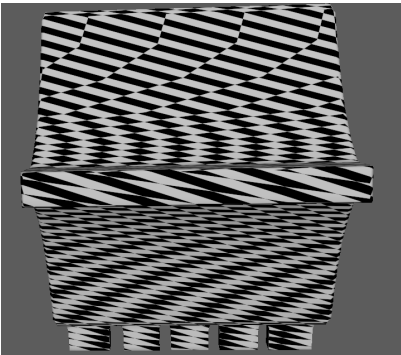
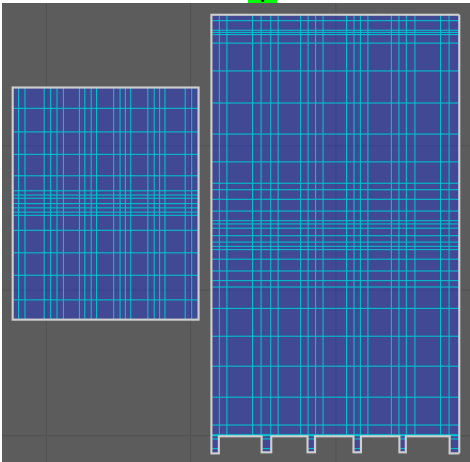
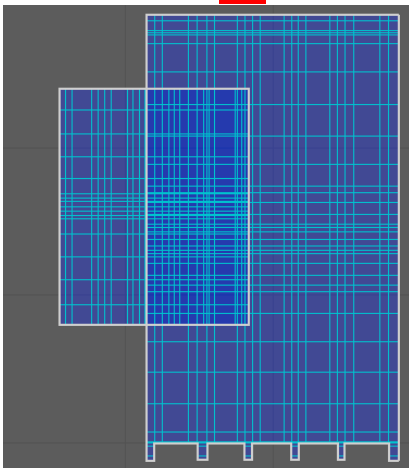
The total marks allocated to measurement marking may vary from competition to competition depending on the Test Project.

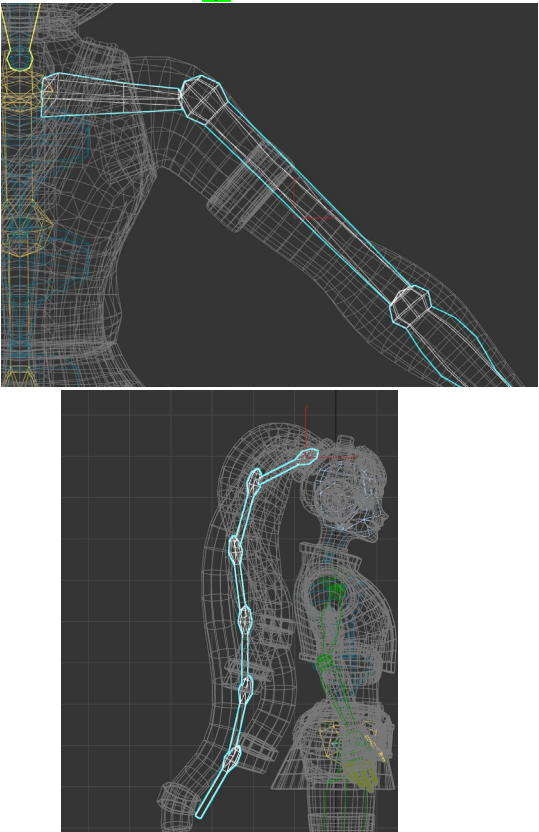
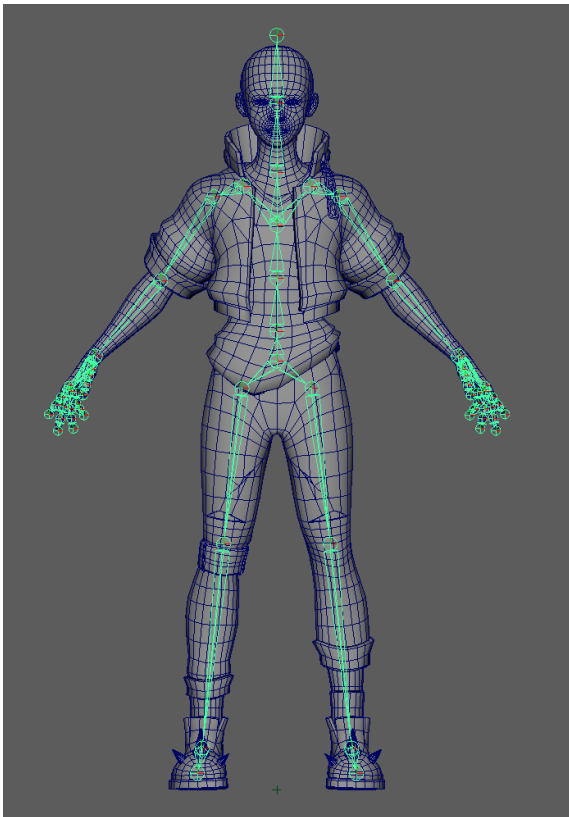
See overleaf

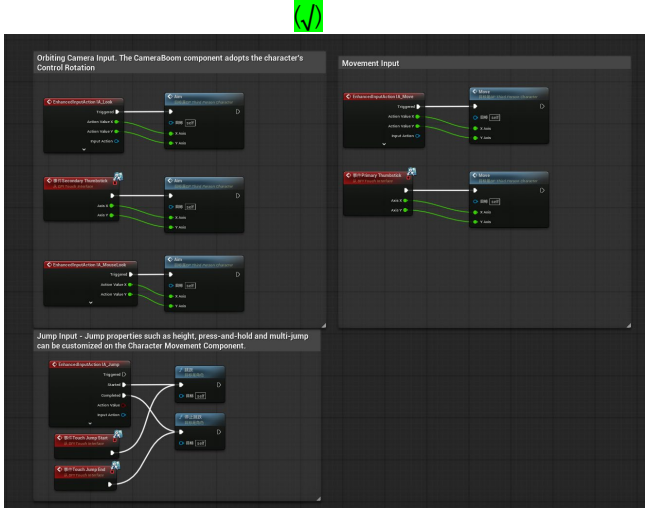
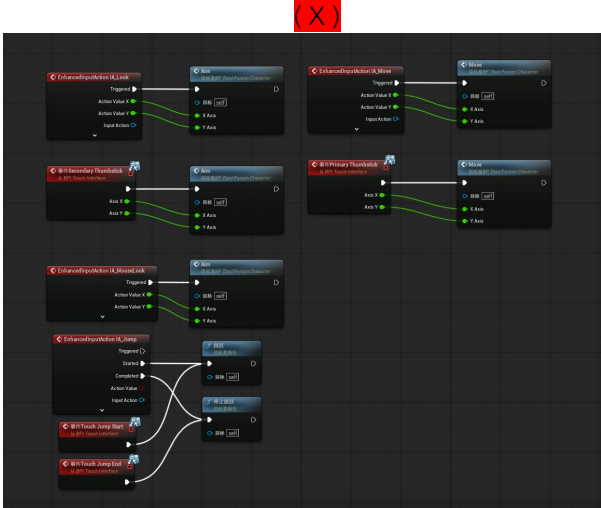
WSOS section as per TD	Descriptor	References
3: Concept Art	Proportions demonstrated to show scale of design	Use human reference beside design   Explicit in displaying height of design 

WSOS section as per TD	Descriptor	References
4: 3D Modelling	No N-Gons: No N-Gons present on the model	✓  (X)  ✓  (X) 

WSOS section as per TD	Descriptor	References	
4: 3D Modelling	No 90-degree edges 90-degree edges have been bevelled		

WSOS section as per TD	Descriptor	References
5: UV Unwrapping	No Stretching: No obvious texture stretching	Test with checkered texture    
5: UV Unwrapping	No Overlapping: Pixels from other shells do not spill into other shells	   

WSOS section as per TD	Descriptor	References	
7: Rigging	Bones are not placed at the joints of the model	(✓) 	(X) 

WSOS section as per TD	Descriptor	References
8: Mastery of the Game Engine	Improve code readability using grouping and comments	 

WSOS section as per TD	Descriptor	References
8: Mastery of the Game Engine	The character can move after running the game	 http://101.37.173.131:7011/video/move-correct  http://101.37.173.131:7011/video/move-wrong
8: Mastery of the Game Engine	Pressing the required input key triggers the intended interaction/animation.	The required input key successfully triggers the interaction sequence: the monkey takes the banana from its backpack, places it on the tabletop, and plays the happy celebration animation upon completion.

Judgement

Judgement is used to assess the quality of performance about which there may be small differences of view when applying the external benchmarks.

The Resources column in the table below may include all kinds/formats of resources such as: a link to a YouTube video, a website link, an illustration, a photo, a reference to a book, and so on. It needs to be as detailed as possible to show the differentiation between 0, 1, 2, 3.

Generic rules:

The assessment group comprises three Experts plus one Expert who acts as the supervisor. The supervising Expert will replace an Expert in the marking group to prevent compatriot marking.

The difference of the three Experts' scores may not exceed 1. If this is the situation the Experts must re-score until there is a maximum difference of 1. As long as the three Experts judge within 1, the result can be entered into the CIS.

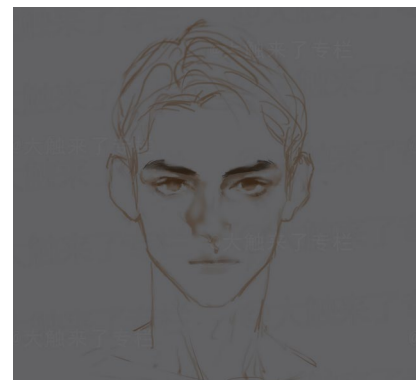
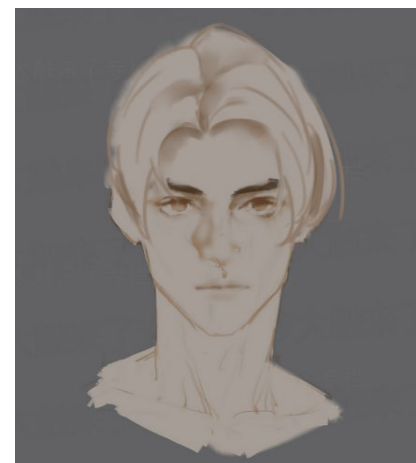
The total marks allocated to judgement marking may vary from competition to competition depending on the Test Project.

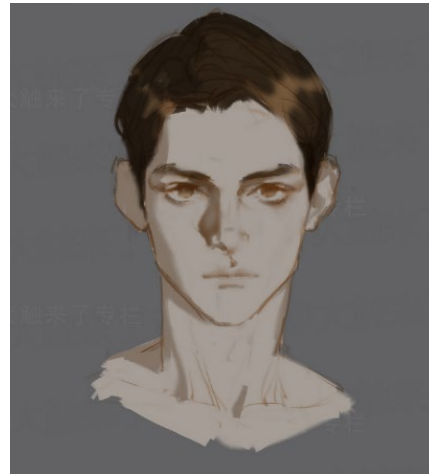
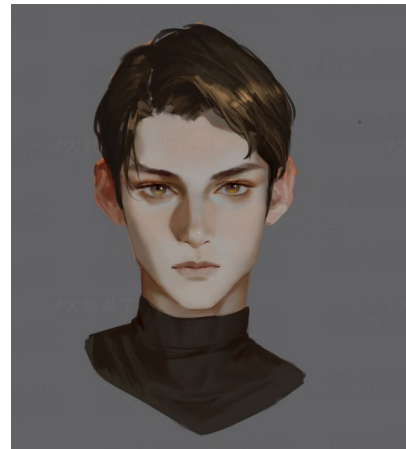
Painting Technique – Art style matches the source artwork

WSOS section as per TD	Score	Descriptor	Resource
3: Concept Art	0	No attempt to adopt the source style	
	1	Attempted the source style	

WSOS section as per TD	Score	Descriptor	Resource
	2	A close attempt at the source style	
	3	Indistinguishable to the source style	

Colour Theory – Colour choice and application in the final concept art

WSOS section as per TD	Score	Descriptor	Resource
3: Concept Art	0	No use of colour	
	1	A single use of colour	

WSOS section as per TD	Score	Descriptor	Resource
	2	A range of colours have been used	
	3	A range of colours have been used from the style guide	

Material Representation – Properties of physical materials (such as cloth, metal, etc.) can be identified visually

WSOS section as per TD	Score	Descriptor	Resource
3: Concept Art	0	No attempt to work on physical properties of materials	
	1	Physical properties of materials cannot be identified	

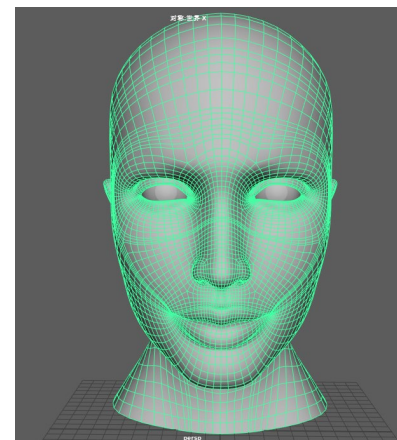
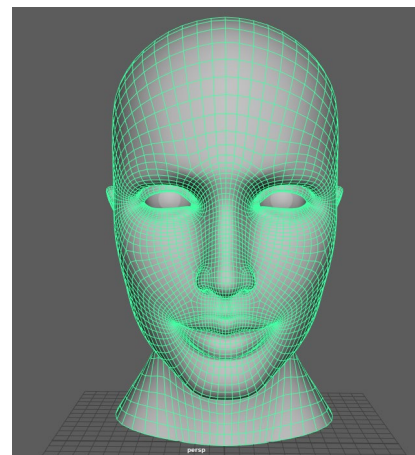
WSOS section as per TD	Score	Descriptor	Resource
	2	Physical properties of 2 or more materials can be identified	
	3	Physical properties of 3 or more materials look realistic	

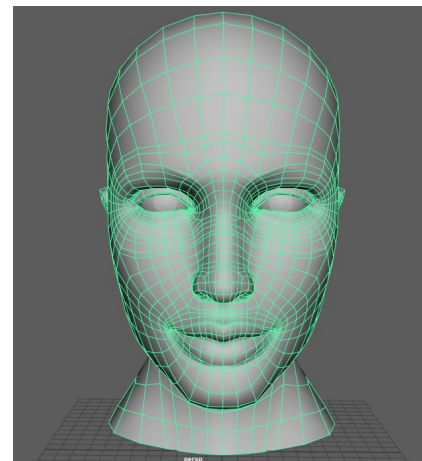
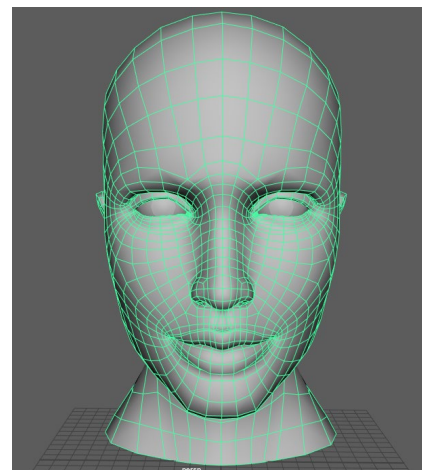
Lighting and shading – Final art uses chromatic scale to represent shadows/highlights

WSOS section as per TD	Score	Descriptor	Resource
3: Concept Art	0	No lighting or shading effect	
	1	Distinction between light and dark	

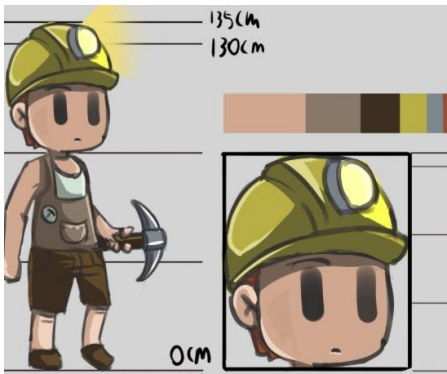
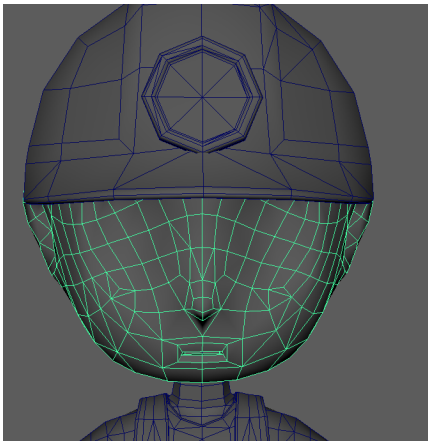
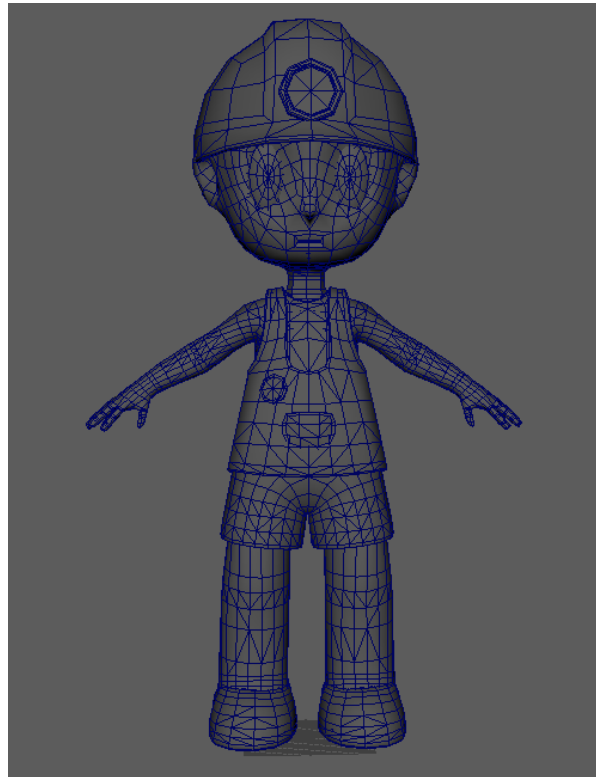
WSOS section as per TD	Score	Descriptor	Resource
	2	With specular highlights	
	3	Lighting and shading reflect material texture	

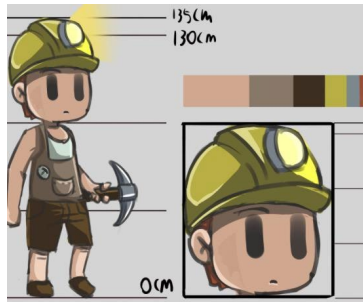
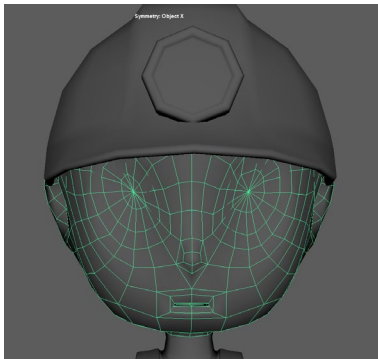
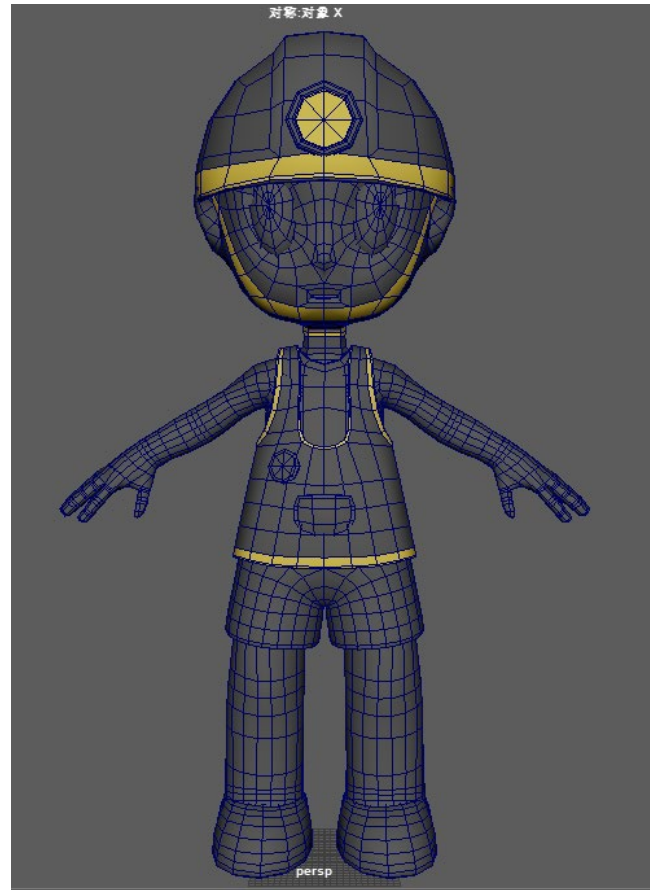
Quad distribution – Asset's distribution of quads is equitable

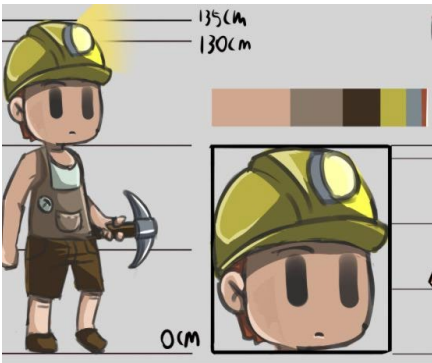
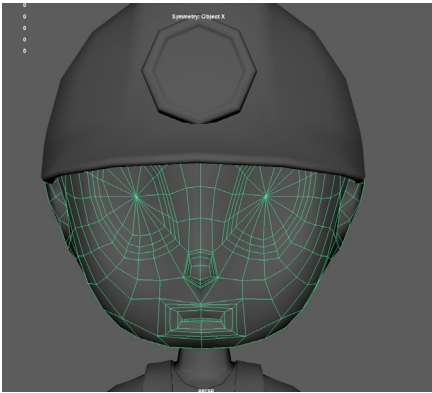
WSOS section as per TD	Score	Descriptor	Resource
4: 3D Modelling	0	Inequitable use of polygons that fail to reduce quads on areas that need less	
	1	The quad sizes are even across the whole model	

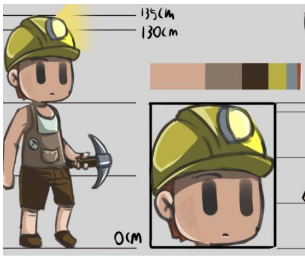
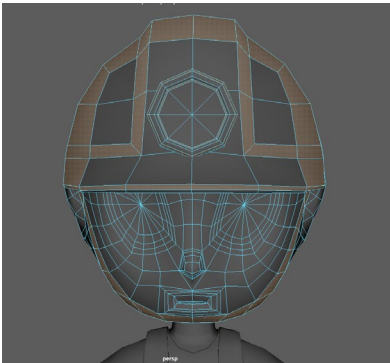
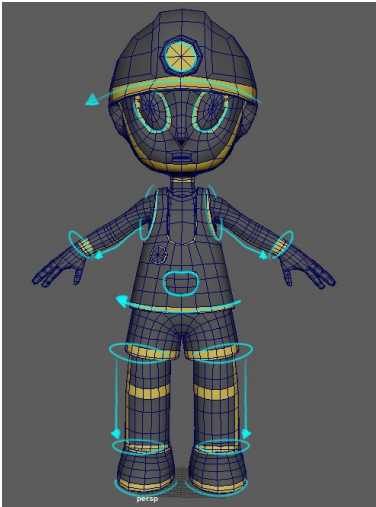
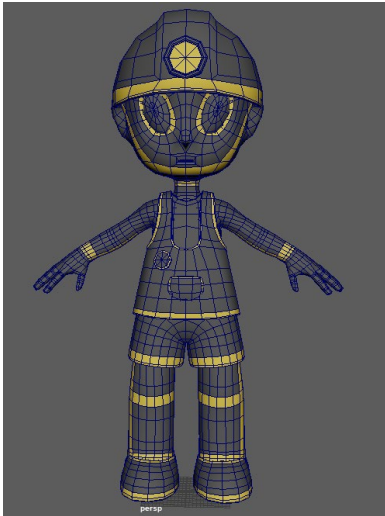
WSOS section as per TD	Score	Descriptor	Resource
	2	The quad sizes are even and areas needing more detail use more quads	
	3	Equitable use of quads that reduce quads on areas that need less	

Edge flow – Asset conforms to edge flow

WSOS section as per TD	Score	Descriptor	Resource
4: 3D Modelling	0	Edgeflow is not aligned with the shape of the concept	  

WSOS section as per TD	Score	Descriptor	Resource
	1	Edge flow is aligned with the concept's shape	  

WSOS section as per TD	Score	Descriptor	Resource
	2	Edge flow accentuates concept's shape	  

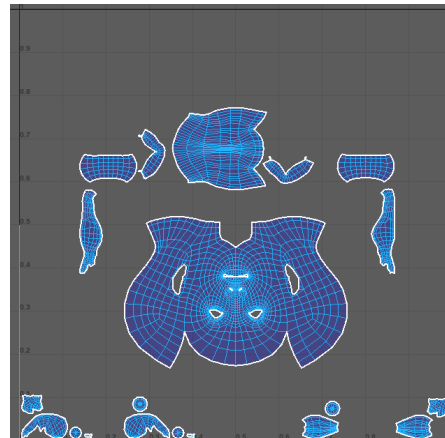
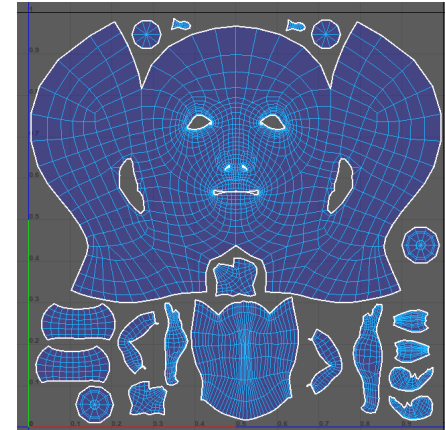
WSOS section as per TD	Score	Descriptor	Resource
	3	Edge flow has no mistuned edges	   

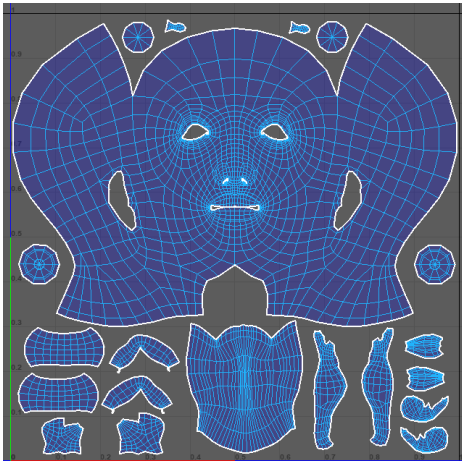
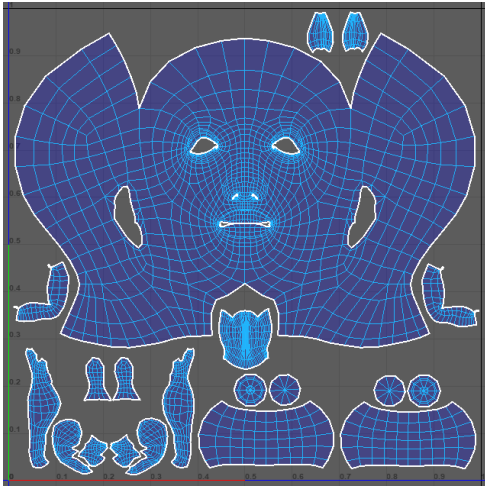
Sculpt – Asset has a sculpt model containing intricate details

WSOS section as per TD	Score	Descriptor	Resource
4: 3D Modelling	0	No sculpt model	No sculpt file can be found
	1	Sculpt has little or no details to the poly model	

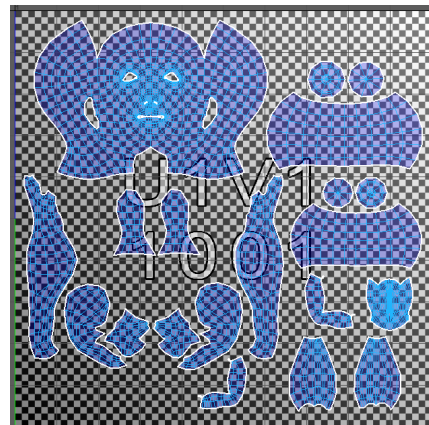
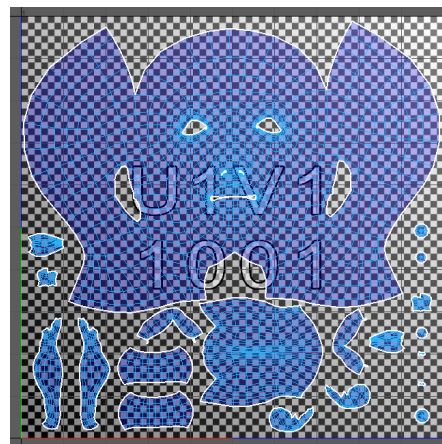
WSOS section as per TD	Score	Descriptor	Resource
	2	Sculpt has good details	
	3	Sculpt has embellishment and intricate exquisite details	

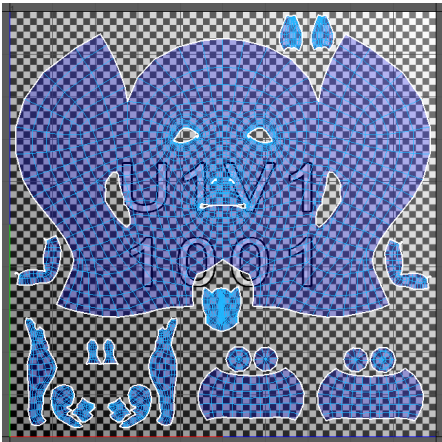
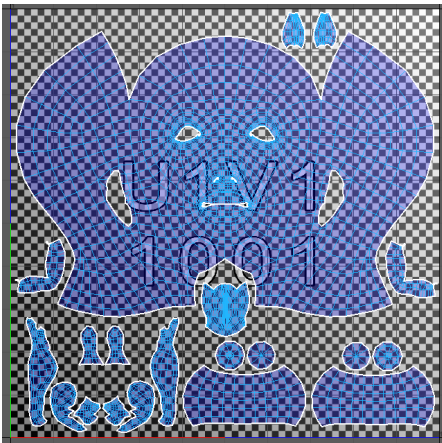
Use of Space – Careful consideration to layout of shells

WSOS section as per TD	Score	Descriptor	Resource
5: UV Unwrapping	0	More than 25% unused space	
	1	Less than 25% unused space	

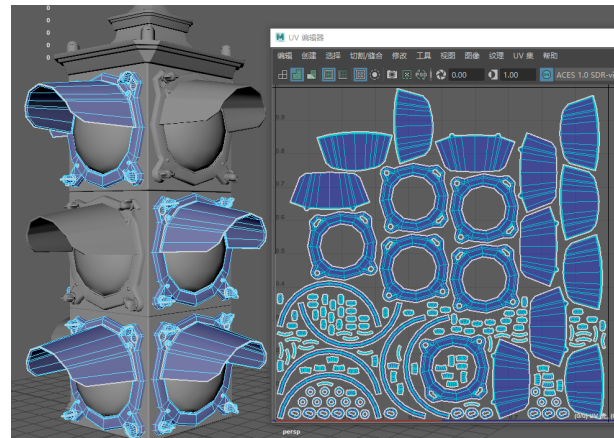
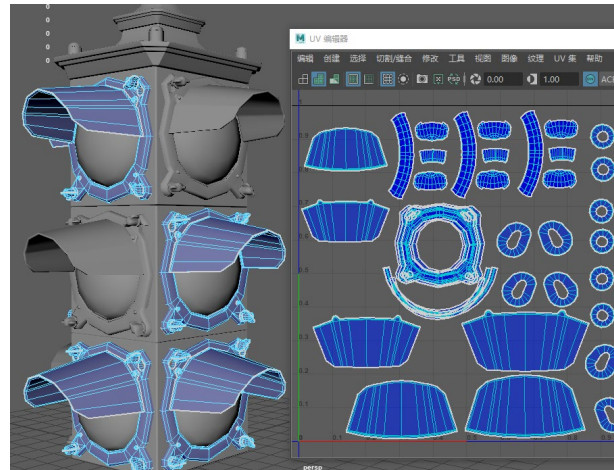
WSOS section as per TD	Score	Descriptor	Resource
	2	Most shells grouped by similar type	
	3	Excellent shell layout, little unused space, grouped similar	

Shells/texel density – Thoughtful use of texel density and shell proportion

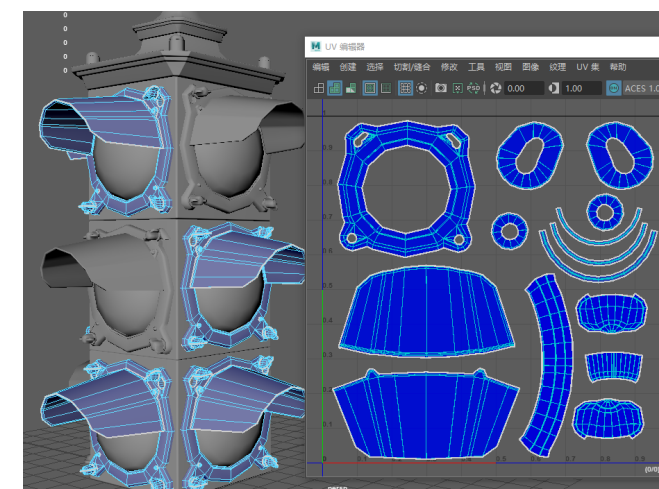
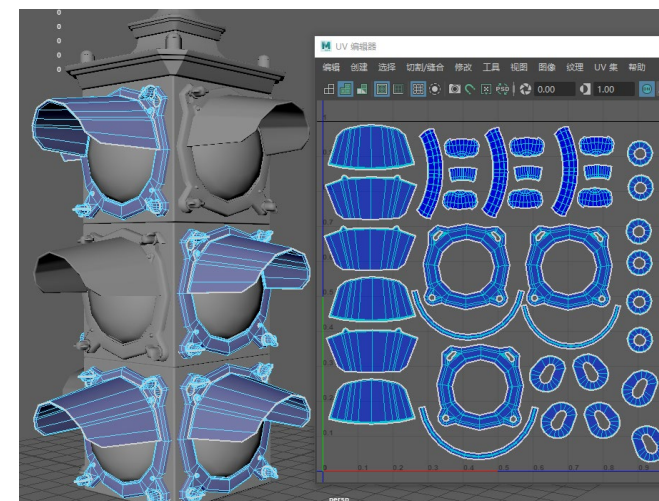
WSOS section as per TD	Score	Descriptor	Resource
5: UV Unwrapping	0	Inequitable use of shell size for detailed areas	
	1	Shells have equal use of the texture sheet	

WSOS section as per TD	Score	Descriptor	Resource
	2	Most of the detailed areas dominate the texture sheet	
	3	Equitable use of shell size for texture detail	

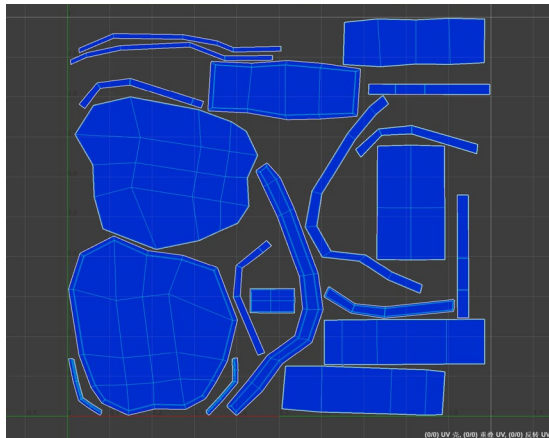
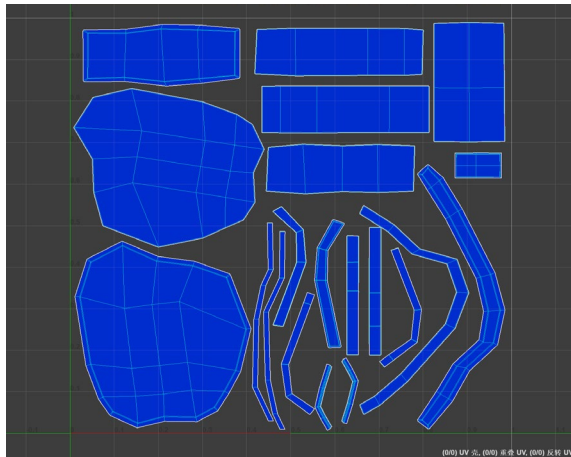
Repeats – Repeated sections of the texture have been effectively used

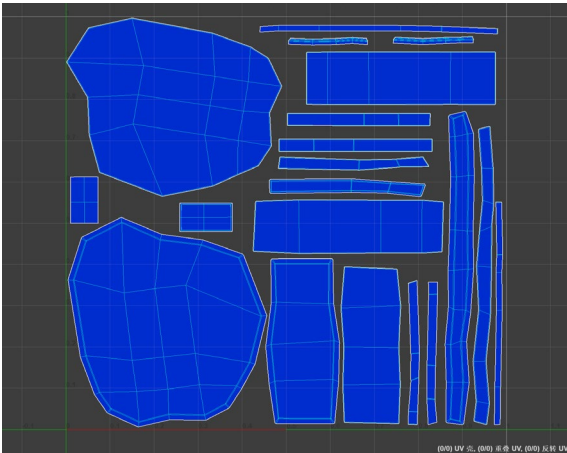
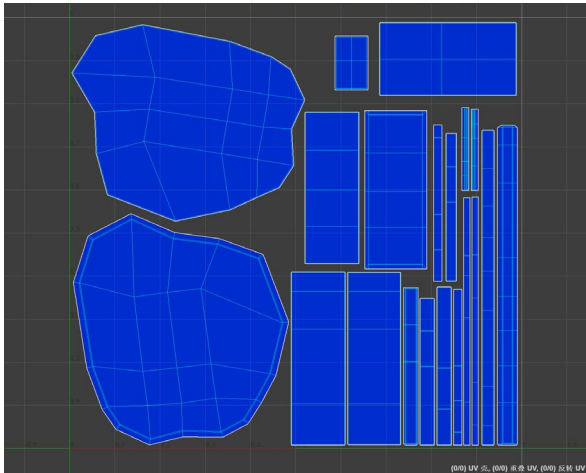
WSOS section as per TD	Score	Descriptor	Resource
5: UV Unwrapping	0	No use of repeated texture	No repeated textures are used, and objects with consistent UVs are reused without overlap at all. 
	1	Ineffective use of repeated texture	Parts with consistent or similar UVs are not stacked accurately 

WSOS section as per TD	Score	Descriptor	Resource
	2	Functional use of repeated texture	Stack UVs of the same texture as much as possible to save UV space.
	3	Efficient and effective use of repeats	Overlap and enlarge repeated UVs as much as possible to draw more texture details

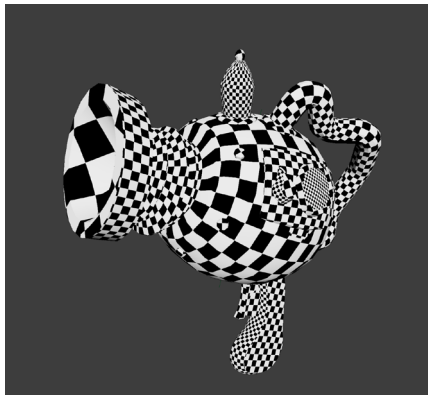
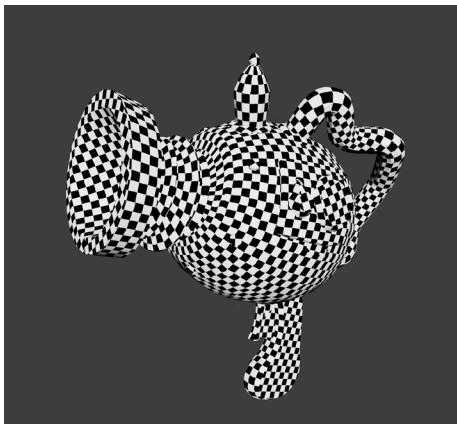


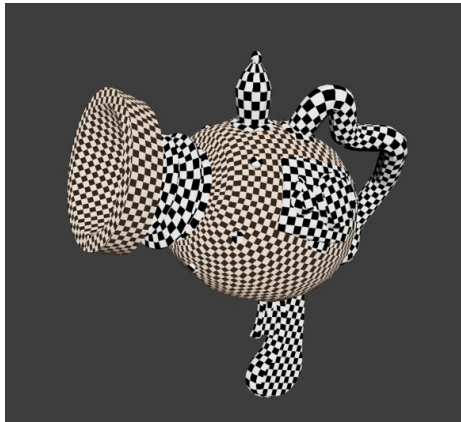
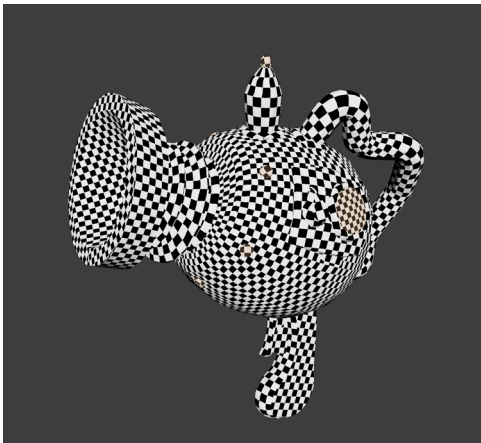
Straighten UVs – Save UV space while preventing linear textures from distortion

WSOS section as per TD	Score	Descriptor	Resource
5: UV Unwrapping	0	Not properly straightened, with UVs randomly arranged and overlapping inconsistently.	
	1	Not straightened, with intentionally stacked UVs.	

WSOS section as per TD	Score	Descriptor	Resource
	2	Generally straightened, but with UVs alternating between horizontal and vertical alignment.	
	3	Perfectly straightened, arranged top-to-bottom (left-to-right).	

Use of space – Careful consideration of shell layout

WSOS section as per TD	Score	Descriptor	Resource
5: UV Unwrapping	0	UV shell size randomly assigned	
	1	UV shell sizes are evenly distributed	

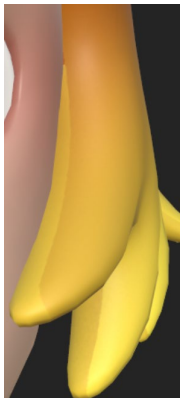
WSOS section as per TD	Score	Descriptor	Resource
	2	Higher pixel density allocated to key detail areas	
	3	Small parts (e.g. screws etc.) have higher pixel density for detailed painting	

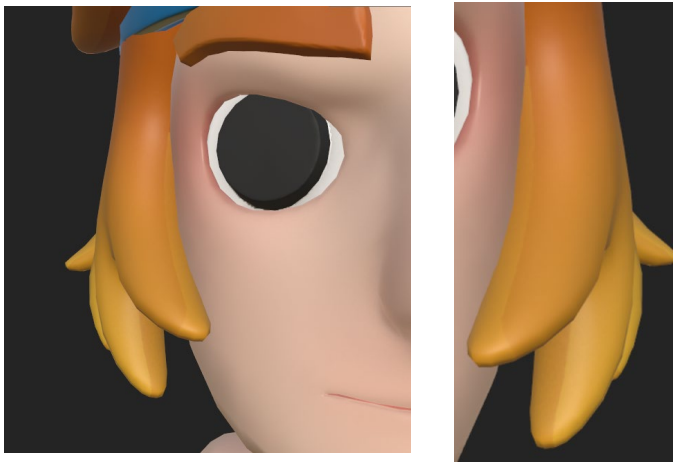
Materials – Surface textures describe materials correctly (skin/metal etc.)

WSOS section as per TD	Score	Descriptor	Resource
6: Texture	0	Majority of materials left as base colours	
	1	Majority of materials created	

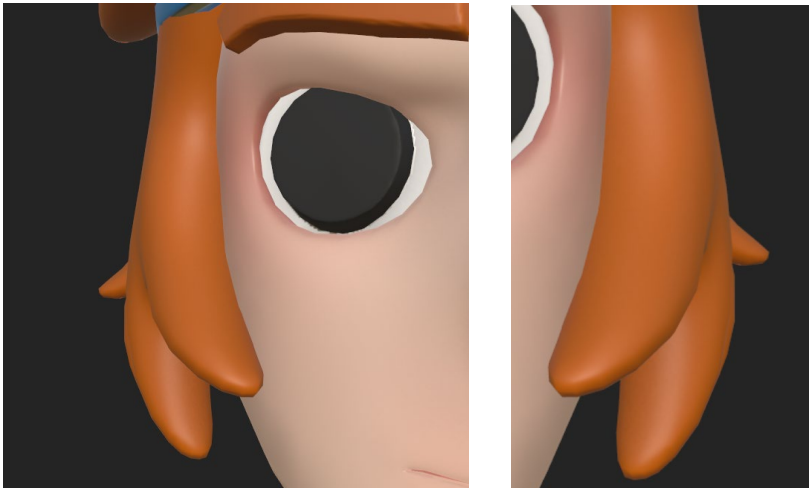
WSOS section as per TD	Score	Descriptor	Resource
	2	Three (3) or more materials effectively represented	
	3	Three (3) or more materials effective use of PBR	

Seamless – Textures look seamless on the model

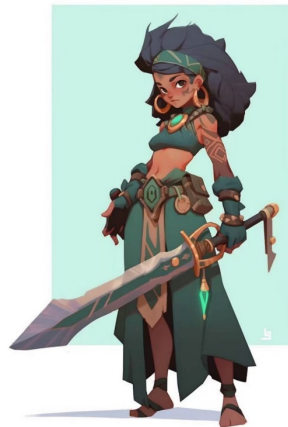
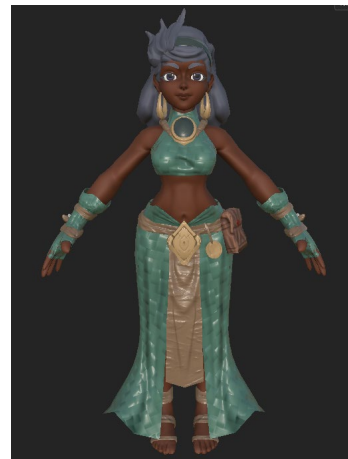
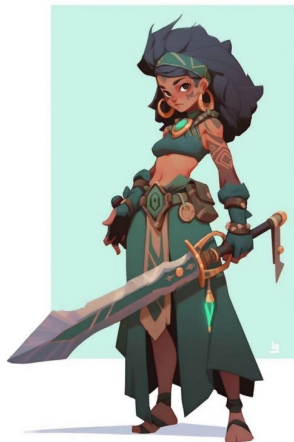
WSOS section as per TD	Score	Descriptor	Resource
6: Texture	0	Obvious seams, joins and breaks in the texture	   

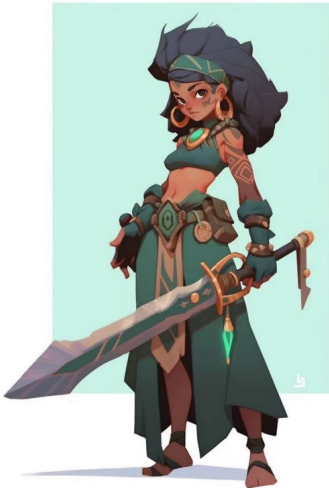
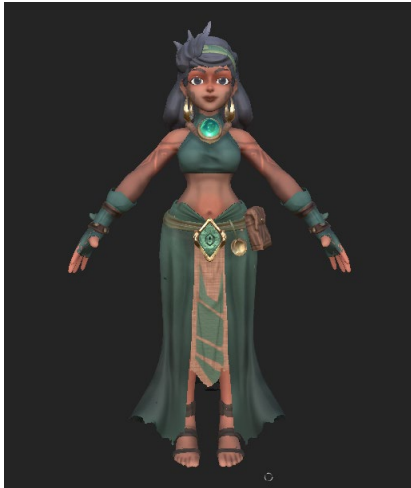
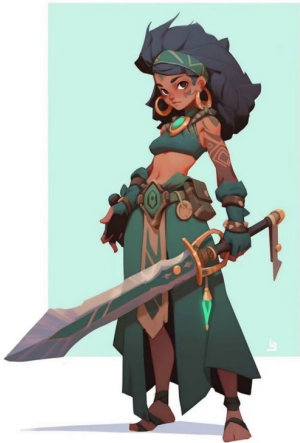
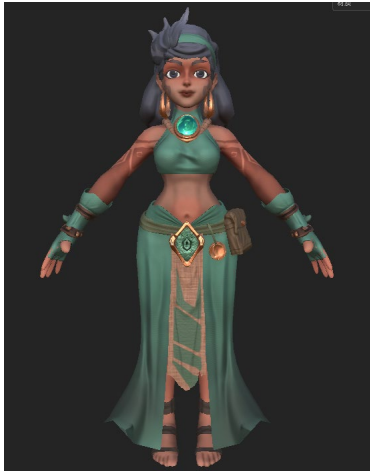
	1	Vaguely perceptible seams on geometry	 
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WSOS section as per TD	Score	Descriptor	Resource
	2	Geometry hides most of the seams	

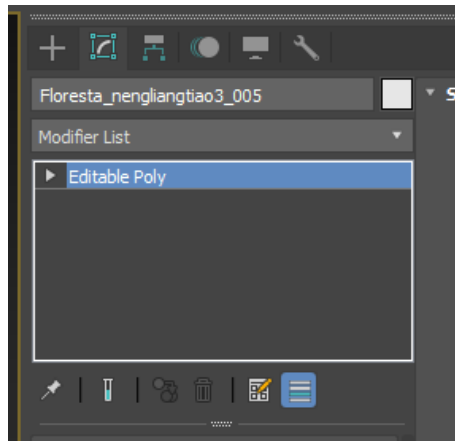
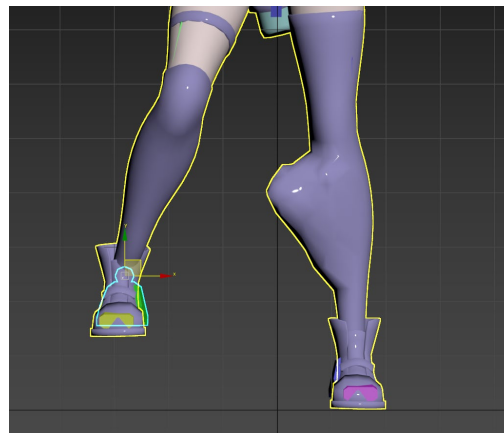
WSOS section as per TD	Score	Descriptor	Resource
	3	Seams are not visible	 

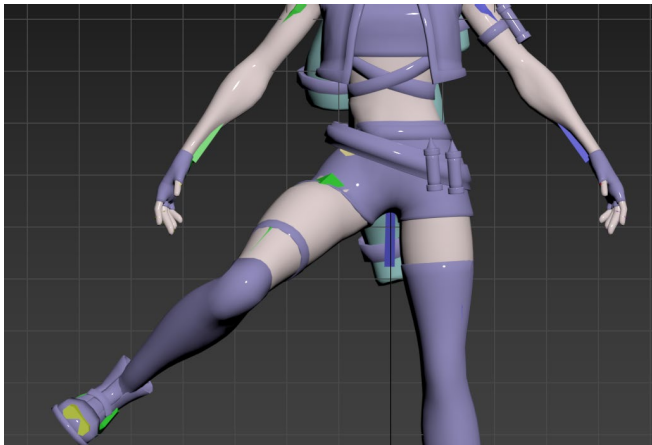
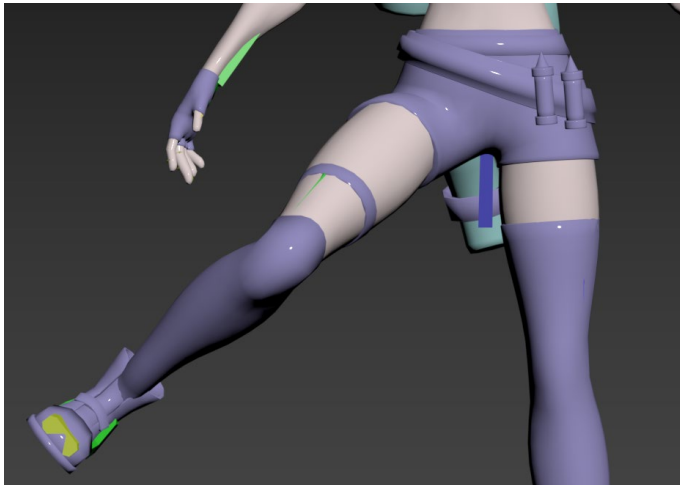
Art style – Art style has been followed

WSOS section as per TD	Score	Descriptor	Resource
6: Texture	0	The textures do not resemble the art style	 
	1	The textures closely resemble the art style	 

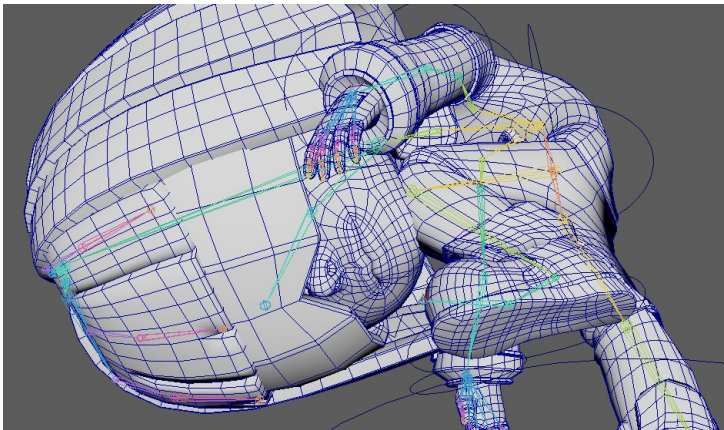
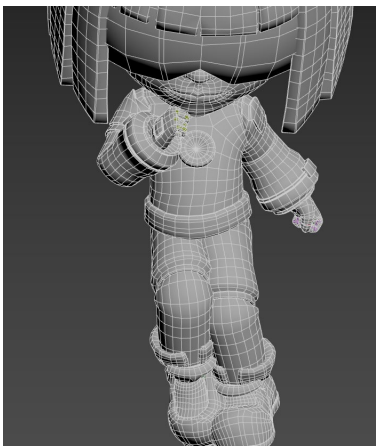
WSOS section as per TD	Score	Descriptor	Resource	
	2	PBR textures and closely resemble the art style		
	3	PBR textures and accurately portray art style		

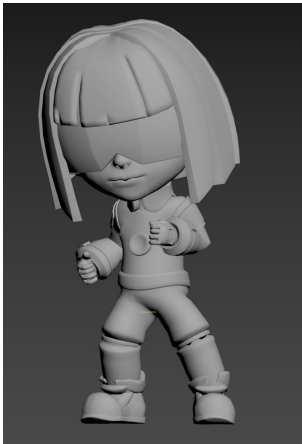
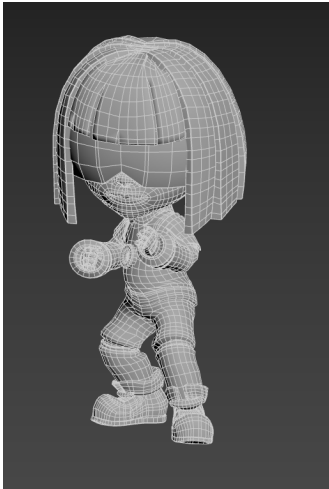
The mesh of the 3D asset is bound to bones, allowing bones to influence it

WSOS section as per TD	Score	Descriptor	Resource
7: Rigging & Animation	0	No skinning	
	1	Basic skinning with noticeable weight painting errors, e.g. left foot movement influences the right foot	

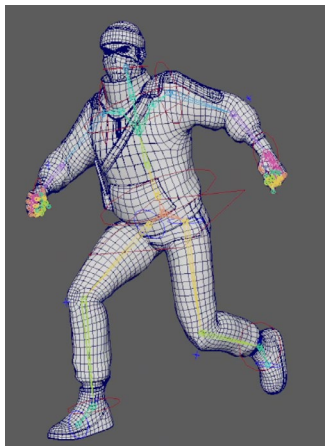
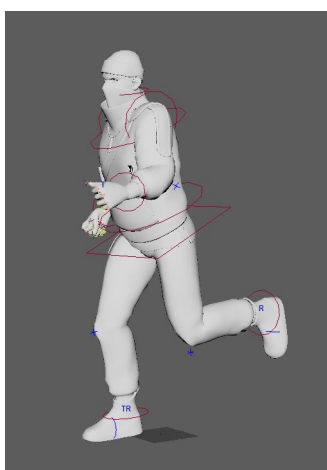
WSOS section as per TD	Score	Descriptor	Resource
	2	Skinning modifier with weight painting to produce moderate deformation	
	3	The skinning modifier is carefully refined using weight painting, resulting in natural and smooth mesh deformation during bone animation	

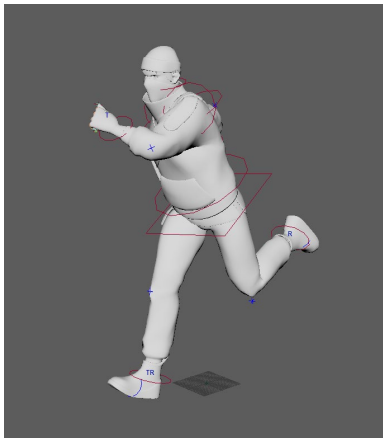
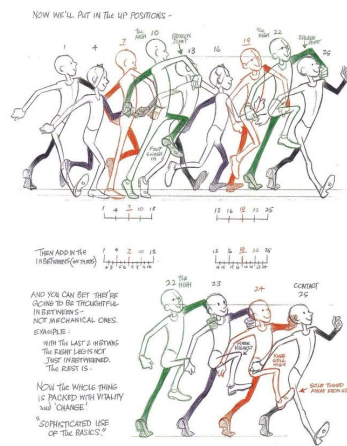
Animation intersections – Avoid mesh intersections

WSOS section as per TD	Score	Descriptor	Resource
7: Rigging & Animation	0	Extensive mesh overlap throughout the animation	
	1	Mesh intersections occur at certain points in the animation	

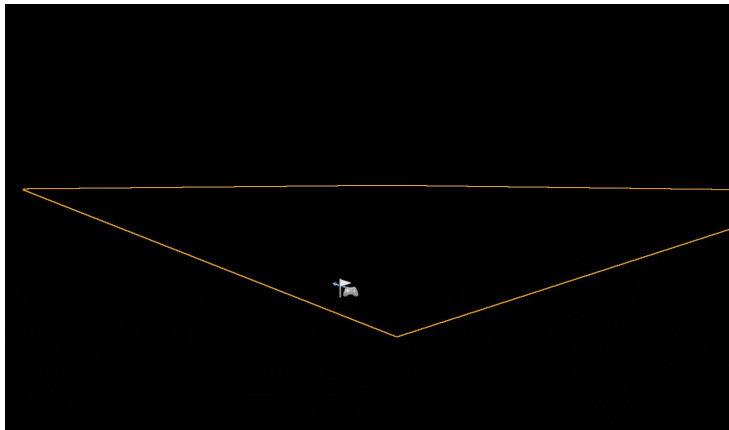
WSOS section as per TD	Score	Descriptor	Resource
	2	Mesh intersections are minimised, with minor overlap or deformation during large movements.	
	3	No mesh intersections; clean animation throughout	

Animation is vivid and rhythmic

WSOS section as per TD	Score	Descriptor	Resource
7: Rigging & Animation	0	Stiff and mechanical animation	 http://101.37.173.131:7011/video/animation-0
	1	Simple but flawed animation; motion lacks smooth looping, realism, and rhythm.	 http://101.37.173.131:7011/video/animation-1

WSOS section as per TD	Score	Descriptor	Resource
	2	Looping animation meets requirements, reflecting character traits while generally reflects to motion principles and rhythm.	 http://101.37.173.131:7011/video/animation-2
	3	Looping animation meets requirements with polished and fluid movement; motion effectively conveys character traits, aligns with motion principles, and demonstrates strong rhythm and timing.	 http://101.37.173.131:7011/video/animation-3

Lighting effect of the 3D asset in the engine

WSOS section as per TD	Score	Descriptor	Resource
8: Mastery of the Game Engine	0	No scene lighting	
	1	Basic scene lighting effect	

WSOS section as per TD	Score	Descriptor	Resource
	2	Three-point lighting ensures adequate illumination, but does not include additional lighting to enhance the scene's mood	
	3	The scene uses three-point lighting, enhanced with environmental effects such as glow or particles to strengthen the overall atmosphere	

Common Unreal Engine blueprint classes

This section is provided as a general reference to support shared understanding of common Unreal Engine terminology. It does not prescribe a specific workflow, implementation method, or marking approach. The assessment should be guided by the Test Project requirements and the intended in-engine outcome.

These references are provided for shared terminology only.

Blueprint Classes	Descriptors
Actor	A general placeable object in a level, such as a prop, door, light, or environmental asset.
Pawn	A controllable object that may receive player or system input.
Character	A type of Pawn commonly used for humanoid characters, with built-in movement and animation support.
Light	A scene object used for illumination and visual presentation
Trigger volume/Box collision	A volume used to detect when an object or character enters a defined area, often used to trigger a simple interaction or animation.