

Unity Creative Core pathway



Syllabus

What is the Creative Core pathway?

This free learning path will teach you all the core elements you will need to bring your imagination to life with Unity. Once you've completed Unity Essentials as an introduction to the fundamentals of the Unity Editor, take this pathway to learn VFX, Lighting, Animation, Audio, UI, and other creative skills, no programming required.



Key details of the pathway

- A 10- to 20-week learning journey that teaches Unity basics and is designed for anyone who wants to become familiar with Unity and real-time content creation.
- Unity Creative Core covers everything needed to develop your skills in VFX, Lighting, Animation, Audio, UI, and other creative skills.
- By the end of this pathway, learners will have created at least one real-time project of their choice and be empowered to create interactive experiences.

What is the scope of this document?

This is a comprehensive syllabus overview that includes suggestions and guidance for educators to assist in the delivery of the Unity Creative Core pathway in their classroom or training center.

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Skills

The following skills are covered in this pathway:

Beginner Audio Design Principles	<ul style="list-style-type: none">● Implement audio in Unity● Create interactive experiences by synthesizing audio experience design principles● Solve accessibility challenges in an audio design
Beginner Audio Implementation	<ul style="list-style-type: none">● Produce customized results by correctly configuring audio in a scene● Refine existing audio in a Unity project● Synthesize your new audio skills in response to project requirements
Beginner User Interface	<ul style="list-style-type: none">● Decide on a user interface approach for a project● Create and configure visual UI components in a manner that will respond appropriately to different screen sizes and resolutions● Create and configure interactive UI components such as buttons, toggles, and sliders, in order to implement simple UI functionality
Beginner Job Preparation	<ul style="list-style-type: none">● Prepare yourself for a freelance job search● Refine your job search priorities and goals● Practice continuous personal and professional growth
Absolute Beginner Design Process	<ul style="list-style-type: none">● Implement an iterative design process● Coordinate a user feedback and testing session● Practice putting the user first
Absolute Beginner Project Management	<ul style="list-style-type: none">● Plan projects in the real-time development cycle● Manage projects in the real-time development cycle
Beginner Render Pipelines	<ul style="list-style-type: none">● Choose an appropriate render pipeline for a project, given certain requirements● Explain the basic concepts of real-time graphics rendering● Given a scenario, determine the appropriate rendering methods that should be used.
Absolute Beginner Digital Citizenship	<ul style="list-style-type: none">● Engage in digital citizenship best practices● Act in compliance with relevant intellectual property laws
Absolute Beginner Research	<ul style="list-style-type: none">● Conduct research using online technical documentation
Beginner Critical Thinking	<ul style="list-style-type: none">● Conduct critical evaluation in decision making for creative projects
Beginner Materials	<ul style="list-style-type: none">● Decide the best approach for creating materials for the URP/Lit

	<p>shader on 3D GameObjects, given project requirements</p> <ul style="list-style-type: none"> • Create materials for the URP/Lit Shader on a 3D GameObject • Simulate common substances with physically-based materials • Synthesize your new shaders and materials skills in response to project requirements
Beginner Shader Scripting	<ul style="list-style-type: none"> • Create a simple shader and material using Shader Graph
Beginner Shaders	<ul style="list-style-type: none"> • Decide among common shaders to use for a given project
Beginner Lighting	<ul style="list-style-type: none"> • Implement appropriate lighting in a scene in a manner that will simulate the real-world behavior of light • Decide the appropriate lighting system in order to achieve common outcomes in a Universal Render Pipeline (URP) project • Configure ambient (diffuse environmental) lighting in order to convey mood or enhance realism • Generate a lightmap in order to implement baked lighting in a scene • Configure light sources and shadows in order to functionally light a scene • Configure Light Probes in order to increase the realism of baked lighting • Configure Reflection Probes in order to achieve accurate reflections • Troubleshoot common lighting errors in order to appropriately light a scene • Synthesize your new lighting skills in response to project requirements
Beginner Animation Systems	<ul style="list-style-type: none"> • Describe key components of an Animator Controller • Describe the relationship between different animation components • Synthesize your new animation skills in response to project requirements
Beginner 3D Animation (Native Unity)	<ul style="list-style-type: none"> • Create simple keyframed 3D animation sequences
Beginner 3D Animation (Imported)	<ul style="list-style-type: none"> • Configure Animation Clips imported from third-party 3D modeling software or the Asset Store for use in a project • Configure a humanoid rig for use with the Humanoid Animation system
Beginner Prototyping	<ul style="list-style-type: none"> • Determine the appropriate prototyping approach for a specific project

	<ul style="list-style-type: none"> • Decide the critical project features required in order to create a functional prototype • Create a functional prototype in Unity • Integrate external assets and tools into your prototype • Refine a prototype environment using ProBuilder • Refine a prototype environment using Terrain • Test a basic experience prototype • Synthesize your new prototyping skills in response to project requirements
Beginner Particles and Visual Effects	<ul style="list-style-type: none"> • Decide whether to use Unity's Particle Systems or VFX Graph in order to produce an effect in your scene • Produce environmental and burst effects by configuring Unity's Particle System object • Interpret a simple VFX Graph asset • Synthesize your new VFX skills in response to project requirements
Beginner Unity Cameras	<ul style="list-style-type: none"> • Decide which camera setup to use, given a project's requirements • Configure a single Unity camera in a 2D or 3D scene • Synthesize your new camera skills in response to project requirements
Beginner Post-Processing	<ul style="list-style-type: none"> • Evaluate whether post-processing is an appropriate tool for a given goal • Implement a particular visual style in a project by configuring a post-processing profile • Synthesize your new post-processing skills in response to project requirements

Duration

Independently	If completing independently, the course can take 9-10 weeks
In a classroom	If completing with students in a classroom, the course can take 12-15 weeks

Teaching approaches and contexts

Who are your learners?

The Creative Core pathway is a comprehensive course for creating real-time experiences with the Unity Editor. Users with no previous experience should start with the [Unity Essentials pathway](#) as a

primer. Depending on the profile and skill level of your learners, you can use it to facilitate a range of different experiences to best meet their needs.

The Creative Core pathway incorporates different types of content that give you a thorough introduction to each domain, as well as opportunities to bring those domains together in larger projects.

In the core missions, you will learn the core skills in each creative domain, as well as critical, less technical creator skills.

In the **guided project**, you will apply your new skills to a project that we provide while following a design document.

In the **independent project**, you will apply your skills at the end of the pathway to a project that you design.

Learner age range	Delivery suggestions
Lower secondary (middle school and junior high)	<ul style="list-style-type: none">• Structured, facilitated sessions throughout, which break down the self-paced technical instructions into sessions with extension opportunities to ensure the group keeps pace• Scaffolding and extension options mapped to those sessions will help provide differentiated learning experiences
Upper secondary (high school)	<ul style="list-style-type: none">• Independent completion of the self-paced technical learning content, with scaffolding and extension options to provide differentiated learning experiences• Facilitated research and discussion sessions on creator skills and real-time industry exploration• The software installation/new user onboarding guidance is unlikely to be required for this age range
Adult learners with no previous experience (higher, further, and casual education)	<ul style="list-style-type: none">• Independent completion of the self-paced technical learning content, with extension options if appropriate• Facilitated research and discussion sessions on creator skills and real-time industry exploration
Adult learners with previous real-time engine experience (higher, further, and casual education)	<ul style="list-style-type: none">• Unity Essentials may be useful for reference, but it is not designed for learners in this group

Adapting Creative Core pathway content for different teaching approaches and contexts

Instructor/facilitator guidance

As an instructor/facilitator for a learning experience based around the Creative Core pathway, your most valuable contributions are likely to be:

- Modeling techniques and basic creation in Unity (this is especially the case for less technically literate cohorts).
- Facilitating discussion and exploration of creator skills and workplace industries.
- Questioning to consolidate and deepen understanding.
- Troubleshooting learner technical issues.

The following table offers some guidance on adapting this learning experience for your teaching approaches and circumstances.

Flipped classroom / instruction	Pre-class work can be assigned by tutorial or mission within the Unity Creative Core pathway. Research tasks for creator skills and real-time industry group discussions, presentations, or peer review feedback sessions are also ideal for the flipped classroom.
Project-based	The Unity Creative Core pathway is a project-based course at its core. It is also an ideal prerequisite before learners begin Create with Code , our project-based C# programming and development course.
Inquiry-based	The Unity Creative Core pathway covers software fundamentals, and so has not been designed with inquiry-based learning as a priority. However, the career and real-time industry information within the pathway could provide the foundation for identifying research questions for further inquiry-based/research-based learning that meets the particular needs of your group.
Independent learning	The Unity Creative Core pathway is designed in such a way that learners can choose to study independently, with optional checkpoints from the educator. The content is complete and is presented in a mix of video and text, with all the required resources linked in each module.

Self-paced learning time estimates

To assist you in planning the learning time, we have provided this table to illustrate the estimated time needed for each section and unit.

Mission: [Introduction to Creative Core](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Welcome to Creative Core	10 minutes	15 minutes
Meet the Creators	10 minutes	15 minutes
Select your guided project	15 minutes	25 minutes
Get started on your guided project	20 minutes	25 minutes
Get started with Unity documentation	20 minutes	30 minutes
Develop your critical evaluation skills	20 minutes	30 minutes
Guided project setup checkpoint	5 minutes	10 minutes

Mission: [Shaders and materials](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with shaders and materials	15 minutes	25 minutes
Explore meshes and rendering	20 minutes	30 minutes
Explore shaders	15 minutes	25 minutes
Manage materials in a project	25 minutes	35 minutes
Simulate solid surfaces	30 minutes	45 minutes
Map materials with textures	15 minutes	25 minutes
Create translucent and transparent effects	20 minutes	30 minutes

Add physical texture with bump mapping	15 minutes	25 minutes
Refine surfaces with more texture maps	25 minutes	35 minutes
Get started with Shader Graph	30 minutes	45 minutes
Challenge: Create your still life composition	2 hours	3 hours
Apply materials and shaders to your guided project	35 minutes	50 minutes

Mission: [Lighting](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with lighting	20 minutes	30 minutes
Get started with lighting in Unity	20 minutes	30 minutes
Configure the Directional Light and skybox	25 minutes	35 minutes
Add light sources to your scene	25 minutes	40 minutes
Configure shadows in your scene	20 minutes	30 minutes
Bake a lightmap for your scene	35 minutes	50 minutes
Improve your lighting with Light Probes	35 minutes	50 minutes
Examine and complete the indoor scene	35 minutes	50 minutes
Refine and troubleshoot the indoor scene	30 minutes	45 minutes
Improve reflections in your scene	25 minutes	35 minutes
Showcase your work with lighting	35 minutes	50 minutes
Challenge: Complete a cinematic lighting study	3 hours	4 hours 30 minutes
Apply lighting to your guided project	1 hour	3 hours
Creative Core: Lighting quiz	15 minutes	25 minutes

Mission: [Animation](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with animation	20 minutes	30 minutes
Create your first 3D animations	40 minutes	1 hour
Refine your animation	40 minutes	1 hour
Control animation with an Animator	50 minutes	1 hour 15 minutes
Import animation	30 minutes	45 minutes
Challenge: Bring the scene to life	1 hour 30 minutes	2 hours 15 minutes
Apply animation to your guided project	1 hour	1 hour 30 minutes
Creative Core: Animation Quiz	30 minutes	45 minutes

Mission: [VFX](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with VFX	10 minutes	15 minutes
Play around with a Particle System	10 minutes	15 minutes
Create an environmental Particle System	20 minutes	30 minutes
Create a burst particle	30 minutes	45 minutes
Experiment with VFX Graph	20 minutes	30 minutes
Challenge: Add some magic to your scene	30 minutes	45 minutes
Apply VFX to your guided project	1 hour	1 hour 30 minutes
Creative Core: VFX Quiz	30 minutes	45 minutes

Mission: [Cameras](#)

Tutorial	Time (suggested)	
	Minimum	Maximum

Get started with cameras	25 minutes	35 minutes
Select your camera projection type	20 minutes	30 minutes
Control what your camera sees	15 minutes	25 minutes
Explore camera views	15 minutes	25 minutes
Explore camera shot types	10 minutes	15 minutes
Challenge: Recreate the scene	30 minutes	45 minutes
Apply cameras to your guided project	1 hour	1 hour 30 minutes
Creative Core: Camera Quiz	15 minutes	25 minutes

Mission: [Post-processing](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with post-processing	20 minutes	30 minutes
Create your own post-processing profile	25 minutes	35 minutes
Challenge: Create a local volume	1 hour	1 hour 30 minutes
Apply post-processing to your guided project	1 hour	1 hour 30 minutes
Creative Core: Post-processing Quiz	20 minutes	30 minutes

Mission: [Audio](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with audio	25 minutes	35 minutes
Create dynamic sound effects	35 minutes	50 minutes
Create 3D sound effects	50 minutes	1 hour and 20 minutes
Add special effects to existing audio	20 minutes	30 minutes

Accessibility considerations for audio	15 minutes	25 minutes
Challenge: Your own soundscape	45 minutes	1 hour
Apply audio to your guided project	1 hour	1 hour 30 minutes
Creative Core Audio quiz	30 minutes	45 minutes

Mission: [UI](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with user interfaces	30 minutes	45 minutes
Add a title to your scene	30 minutes	45 minutes
Manage screen size and anchors	30 minutes	45 minutes
Create a menu background with images	25 minutes	35 minutes
Add basic button functionality	30 minutes	45 minutes
Add toggles and sliders	30 minutes	45 minutes
Challenge: Make a worldspace UI	30 minutes	45 minutes
Apply UI to your guided project	1 hour	1 hour 30 minutes
Creative Core: UI quiz	20 minutes	30 minutes

Mission: [Prototyping](#)

Tutorial	Time (suggested)	
	Minimum	Maximum
Get started with prototyping	25 minutes	35 minutes
Choose a prototype idea	15 minutes	25 minutes
Plan and scope your prototype	40 minutes	1 hour
Create your graybox prototype	30 minutes	45 minutes
Build on your basic prototype	30 minutes	45 minutes

Enhance your prototype with ProBuilder	45 minutes	1 hour
Enhance your prototype with Terrain	20 minutes	30 minutes
Test your prototype	30 minutes	45 minutes
Challenge: Complete your independent project	1 hour	1 hour 30 minutes
Plan your next steps	20 minutes	30 minutes
Entry-level freelancing for creators	15 minutes	25 minutes
Creative Core: Prototyping quiz	15 minutes	25 minutes

Course outline

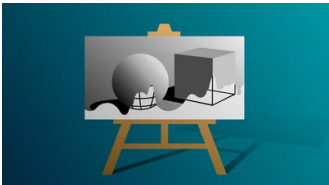
Mission 01: Introduction to Creative Core





This mission is your first step on the Creative Core pathway. Start here to learn about the topics covered, the activities required, and the skills you will gain along the way.





In this mission, you will:

- Learn about the topics covered in Creative Core.
- Select a guided project in which to apply your new skills.
- Create a new project in Unity and make some technical decisions about that project.
- Learn how to use other people's works in your projects responsibly.
- Tour Unity's technical documentation as another resource for your learning.
- Conduct critical evaluation in decision-making for creative projects.

1	Welcome to Creative Core 	<i>Welcome to the Creative Core pathway! In this tutorial, you will learn what the Creative Core pathway is, who it's for, and how it's structured.</i>
2	Meet the Creators	<i>Meet the creators who will help guide you along your Creative Core learning journey.</i> <i>In this tutorial you'll:</i>

		<ul style="list-style-type: none"> • Describe a variety of different creator journeys in real-time 3D. • Identify job roles to consider in preparation for refining your personal goals. • Identify a method for evaluating your ongoing learning journey that will help you synthesize the experience.
3	<p>Select your guided project</p> 	<p><i>In the Creative Core pathway, your guided project is where you will apply your skills. We have provided three guided projects for you to choose from so that you don't have to come up with a concept on your own in order to get started in the pathway. In this tutorial, you'll select the guided project that's right for you.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain the role of a design document in the design process. • Describe the structure and content of design documents.
4	<p>Get started on your guided project</p> 	<p><i>Before you begin creating in your guided project, there are a few options to consider and technical tasks to complete, which you'll use for every new Unity project.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Define key terms of real-time graphics including rendering, render pipeline, and scriptable render pipeline. • Identify the differences between Unity's provided render pipelines, including advantages, disadvantages, and common use cases for each. • Create a new project using a particular render pipeline.
5	<p>Get started with Unity documentation</p> 	<p><i>In your learning journey, you will (we hope!) become curious about the many features and capabilities of the Unity Hub, Editor, packages, and scripting API. Unity provides a comprehensive library of documentation on these products that's available online.</i></p> <p><i>Unity documentation is an excellent resource to review what you have learned, investigate intermediate and advanced features, and expand your learning.</i></p> <p><i>By the end of this tutorial, you will be able to:</i></p> <ul style="list-style-type: none"> • Define documentation.

		<ul style="list-style-type: none"> • <i>Identify the major sections of Unity documentation.</i> • <i>Find information on a specific topic in Unity documentation.</i>
6	<p>Develop your critical evaluation skills</p> 	<p><i>Making the best possible decisions in a moment can sometimes feel like a mysterious quality that some people have and others just don't. That's not actually the case — anyone can work to improve the set of skills that decision-making relies on! Critical evaluation is at the heart of this.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Explain the importance of critical evaluation in a creative project.</i> • <i>Identify approaches to obtain and evaluate information required to make a decision in a creative project.</i> • <i>Consider the role of critical evaluation in your journey as a creator.</i>
7	<p>Mission checkpoint</p> 	

Mission 02: Shaders and materials


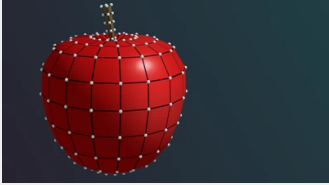
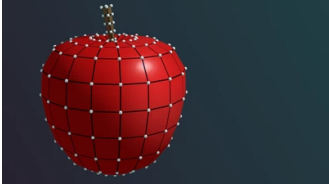
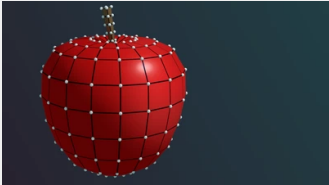
Shaders and materials let you define how your 3D objects look: their colors, reflectivity, and physical texture. With shaders and materials, you can bring realism into your projects or express your own artistic style.

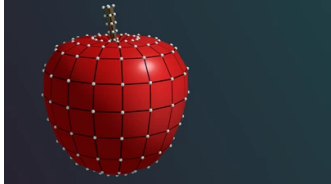
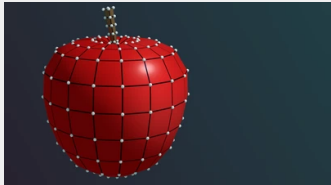
In this mission, you will explore concepts of light and reflection, including common terms that many 3D artists use every day. You'll apply these concepts to create your own materials and shaders that simulate real-world objects — and even some other-worldly objects. You'll complete this mission by creating a still life composition in which you can demonstrate a variety of shaders and materials.

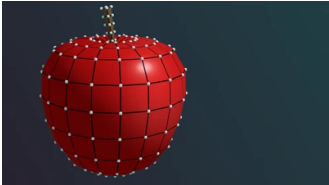
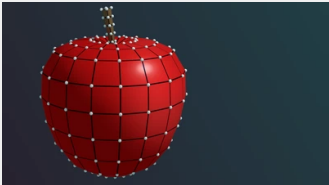
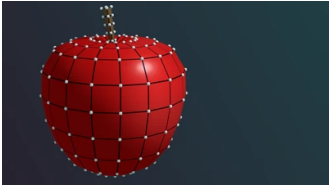
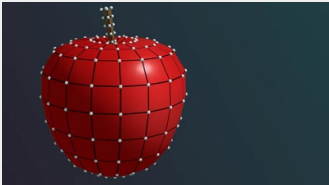
By the time you complete this learning experience, you will be able to:

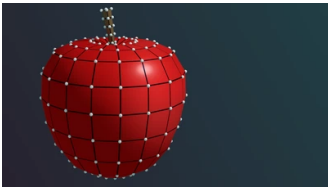

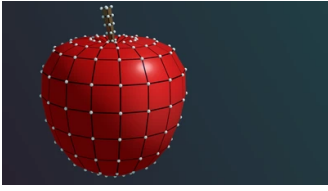
- Explain how surfaces in Unity are defined and rendered.
- Select a type of shader for your own project.
- Create materials for a common shader, using a wide variety of properties.

- Create your own simple shader using Shader Graph.

1	Get started with shaders and materials 	<p><i>Shaders and materials are to a 3D scene as paint is to a painting — they are the media for expressing the artistic look and feel of your real-time 3D projects. In this tutorial, you will get acquainted with the art gallery project that we'll use in this learning experience.</i></p>
2	Explore meshes and rendering 	<p><i>In technical terms, shaders and materials operate on meshes, which are the surfaces of GameObjects. They instruct Unity's renderer how to render each mesh. In this tutorial, you'll learn about meshes and rendering.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Define a mesh, its characteristics, and its use in rendering a 3D GameObject. • Explain the role of shaders in the rendering process. • Assign a material to a GameObject.
3	Explore shaders 	<p><i>Shaders do the work of computing how meshes will be rendered. In this tutorial, you'll learn about the types of shaders and see how they fit into the rendering process.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Determine the shader type for an object based on the design requirements. • Explain the difference between physically-based and non-physically-based rendering and reasons for using each. • Explain the difference between a lit and unlit shader and the reasons for using each. • Explain vertex and fragment (pixel) shaders. • Describe use cases for the Universal Render Pipeline shaders provided with Unity.
4	Manage materials in a project 	<p><i>You will do much of your more artistic work using materials to color, texture, and stylize your 3D objects. In this tutorial, you'll learn how materials work and how to use, troubleshoot, and organize them in your projects.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Define material.

		<ul style="list-style-type: none"> • Create a new material. • Assign a material to a GameObject. • Manage materials as project assets. • Fix broken (magenta) materials.
5	<p>Simulate solid surfaces</p> 	<p>Materials define the ways that light will behave on an object. In this tutorial, you'll begin learning about materials by learning how light behaves with solid objects. Along the way, you'll create materials for solid objects, and you'll be able to simulate objects in the real world.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Explain specular and diffuse reflectivity. • Distinguish between Specular and Metallic properties and explain how each is configured • Adjust the Base Map of a material using a color. • Apply the Specular and Metallic workflows to achieve desired effects. • Identify the characteristics of a real-world surface to be configured in a new material. • Adjust material properties to simulate a given solid substance.
6	<p>Map materials with textures</p> 	<p>Textures are 2D maps that wrap around 3D objects to create variations in color, reflectivity, and other properties. In this tutorial, you'll learn how textures work, and you'll begin applying them to objects using materials.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Define texture and map as they are used in materials. • Explain the maps that are configurable on the URP/Lit Shader and their various effects. • Define UVs. • Explain how 3D modeling programs are used to create assets for Unity materials. • Adjust the Base Map of a material using an image. • Given a collection of texture files, select appropriate maps to simulate a material.
7	<p>Create translucent and transparent effects</p>	<p>Light doesn't only bounce off objects — sometimes it passes through them. In this tutorial, you'll use transparency to create a translucent object that looks like glass and also use the technique of alpha clipping to create realistic looking leaves from simple rectangular meshes.</p>

		<p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Apply more maps that are configurable on the URP/Lit Shader . • Apply alpha clipping in a material. • Apply the transparent surface type to a material.
8	<p>Add physical texture with bump mapping</p> 	<p>Textures are commonly used to add the look of a physical texture to the surface of a mesh without changing the mesh itself. In this tutorial, you'll learn how bump mapping adds the illusion of relief to a surface.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Apply more maps that are configurable on the URP/Lit Shader. • Add a normal map and a height map to a material.
9	<p>Refine surfaces with more texture maps</p> 	<p>Once you are familiar with the basic properties of the URP/Lit shader, you will know how to use many shaders, materials, and textures that you'll encounter as a 3D creator. This tutorial will complete your education on this shader.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Explain the use of Detail Inputs for the URP/Lit shader. • Explain High Dynamic Range color.
10	<p>Get started with Shader Graph</p> 	<p>Now that you know the basics of shading, you have the knowledge to go even further: to create your own shader. With Shader Graph, you can easily apply your knowledge to create new and exciting effects.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Explain Shader Graph and its uses. • Create a new shader in Shader Graph. • Navigate in the Shader Graph editor window. • Connect commonly used Shader Graph nodes to create desired effects. • Make a shader with configurable material properties. • Make a material from a custom Shader Graph shader.
11	<p>Challenge: Create your still life composition</p>	<p>It's time to create your own work of art! We challenge you to create a still life composition with a variety of surfaces, demonstrating what you've learned about shaders and materials.</p>

		<i>By the end of this tutorial, you'll be able to demonstrate your new skills in shaders and materials.</i>
12	Apply materials and shaders to your guided project 	<i>Now it's time to apply what you have learned about shaders and materials to your guided project!</i>
13	Mission checkpoint 	

Mission 03: Lighting

Whether you're exploring the architectural design of your new house, sneaking through a haunted castle in a stealth game, or immersing yourself in the world of cinematic animation, good lighting takes a real-time experience to the next level. From the basics of illuminating a space to telling evocative stories through your design, lighting will help you get there.

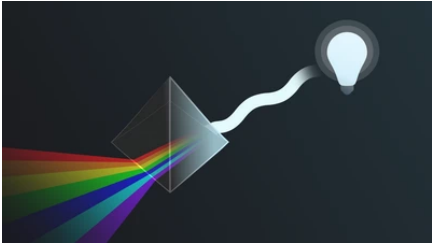
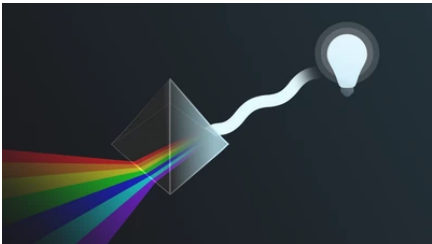
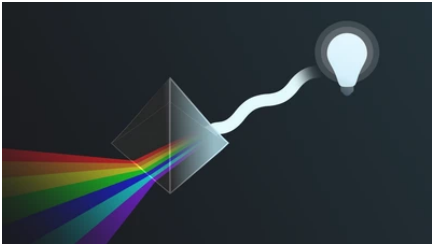


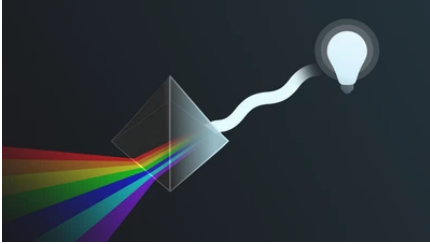
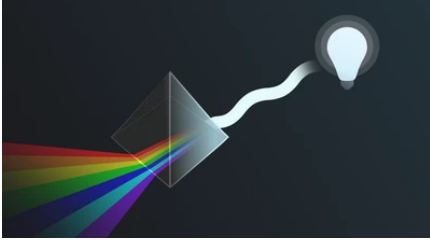
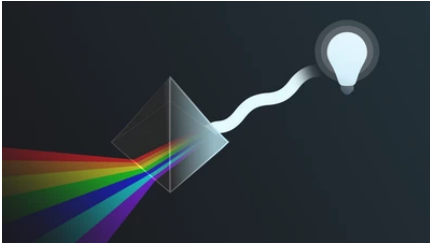
In this mission, you will light an indoor and outdoor space in the Unity Editor and learn about the fundamental principles of lighting for Unity experiences along the way. You'll finish by applying what you've learned to complete your own lighting study.

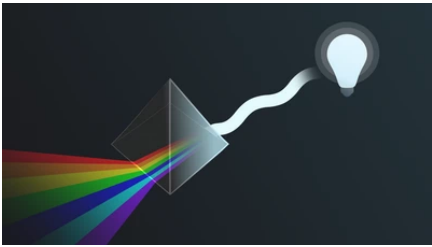
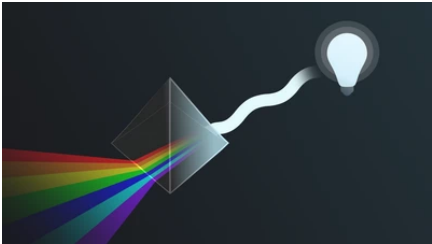
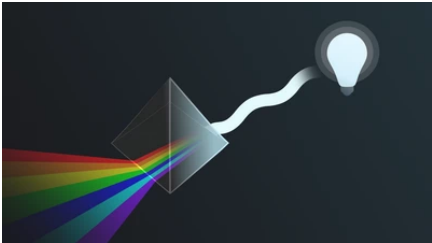
By the time you complete this learning experience, you'll be able to:

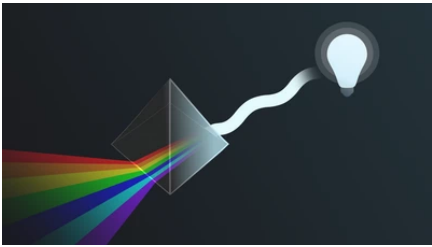
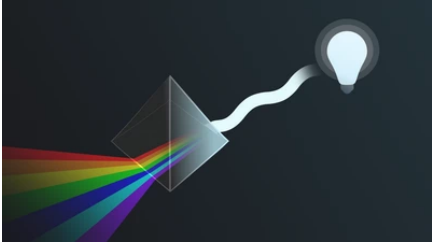
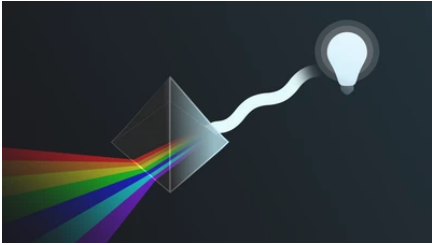
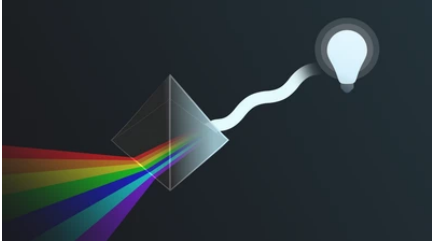
- Implement appropriate lighting in a scene in a manner that will simulate the real-world behavior of light.
- Decide the appropriate lighting system in order to achieve common outcomes in a Universal Render Pipeline (URP) project.
- Configure light sources and shadows in order to functionally light a scene.

- Configure ambient (diffuse environmental) lighting in order to convey mood or enhance realism.
- Generate a lightmap in order to implement baked lighting in a scene.
- Configure Light Probes in order to increase the realism of baked lighting.
- Configure Reflection Probes in order to achieve accurate reflections.
- Troubleshoot common lighting errors in order to appropriately light a scene.

1	<p>Get started with lighting</p> 	<p><i>Whether you're exploring the architectural design of your new house, sneaking through a haunted castle in a stealth game, or immersing yourself in the world of a cinematic animation, good lighting takes a real-time experience to the next level. From the basics of illuminating a space to telling evocative stories through your design, lighting will help you get there.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Describe the fundamentals of the behavior of light. • Identify light sources in an image.
2	<p>Get started with lighting in Unity</p> 	<p><i>Now that you've explored the role of a lighting artist and the basic behavior of light, you're ready to think more specifically about lighting in Unity.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain the difference between direct and indirect light. • Define the term global illumination. • Identify Unity's Global Illumination system for URP. • Explain the main differences between real-time and baked lighting in Unity.
3	<p>Configure the Directional Light and skybox</p> 	<p><i>When you create a new scene in the Unity Editor, your Scene view loads to a bright blue sky. The Directional Light is one of the two GameObjects created for you. These two things are the absolute basics of lighting in Unity, present by default to help creators get started.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Identify key considerations for lighting outdoor scenes realistically. • Describe the role of the Directional Light in a scene. • Configure the Directional Light in a scene to achieve common effects. • Describe the role of a skybox in a scene. • Create a procedural skybox.

4	<p>Add light sources to your scene</p> 	<p><i>At the moment, the amphitheater space in the outdoor scene is lit by natural light in the scene you're working on — now you're ready to add additional light sources.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Identify the differences between the different types of Light component.</i> • <i>Configure Light components to achieve common lighting effects.</i> • <i>Configure the ambient (diffuse environmental) light in your scene.</i>
5	<p>Configure shadows in your scene</p> 	<p><i>Now that you've configured both real-time light sources and ambient light in your scene, you're ready to configure the shadows.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Explain the relationship between lighting and post-processing.</i> • <i>Configure shadows in your scene to achieve realistic effects.</i>
6	<p>Bake a lightmap for your scene</p> 	<p><i>Now that you've set up real-time lighting in your outdoor scene, you're ready to set up the second type of lighting for your project: baked lighting. When you've implemented this and made some adjustments to the lighting configuration throughout your scene, you'll have covered the basics of lighting an outside space!</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Configure light sources appropriately so that they can be baked.</i> • <i>Create a new Lighting Settings asset.</i> • <i>Explain why any changes to the baked lighting require an update to the lightmap.</i> • <i>Customize lightmap properties for your scene.</i>
7	<p>Improve your lighting with Light Probes</p>	<p><i>You've almost finished working on the outdoor scene! In this tutorial, you'll learn about the role of Light Probes in making lighting in your scene more realistic.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Explain how Light Probes improve the realism of lighting in a scene.</i> • <i>Place Light Probes appropriately within a scene.</i> • <i>Evaluate the impact of Light Probes using a diagnostic</i>

		view.
8	<p>Examine and complete the indoor scene</p> 	<p>Now that you've worked on implementing lighting in an outdoor scene, it's time to turn your attention indoors. The same basic principles of lighting apply to indoor environments, but just as light indoors and outdoors tends to be different in the physical world, there are particular considerations that it's important to make when lighting an indoor space for a real-time experience.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Identify key considerations for lighting indoor scenes realistically. • Add emissive materials to a scene. • Check emissive materials in a diagnostic view. • Place Light Probes in a 3D volume arrangement within a scene.
9	<p>Refine and troubleshoot the indoor scene</p> 	<p>You're nearly at the end of your indoor and outdoor scene journey. So far you've lit the outdoor scene from scratch and made some minor additions to the indoor scene. Now you're ready to refine the lighting in this scene.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Configure indirect lighting to improve the overall lighting level in an indoor scene. • Identify common troubleshooting issues for beginner-level lighting in Unity. • Improve light leaks through exploratory adjustment of lighting properties. • Identify when an important model has incorrect lightmap UVs. • Generate lightmap UVs for a model imported without them.
10	Improve reflections in your scene	<p>You've almost completed your work on the indoor scene, but there's a little more to do. Before you finish the indoor scene, you need to make the scene more realistic by addressing issues with reflection that are currently present.</p>

		<p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Explain how Reflection Probes improve the accuracy of reflections in a scene. • Configure a Reflection Probe.
11	<p>Showcase your work with lighting</p> 	<p>In the previous tutorials in this learning experience, you lit an outdoor scene and an indoor scene, developing your understanding of lighting in Unity as you did so. Now it's time to apply your understanding of lighting in Unity to a slightly different context: showcasing a product.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Identify research topics and resources to develop your understanding of foundational lighting science and design principles. • Configure Light components to showcase an object in Unity.
12	<p>Challenge: Complete a cinematic lighting study</p> 	<p>In this challenge, you'll complete a cinematic lighting study using your own choice of inspiration.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Identify research topics and resources to develop your understanding of foundational lighting science and design principles. • Demonstrate your new skills in lighting.
13	<p>Apply lighting to your guided project</p> 	<p>Now it's time to apply what you have learned about lighting to your guided project!</p>
14	<p>Mission checkpoint</p>	

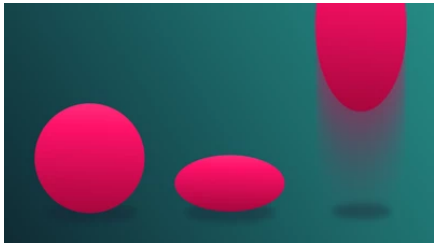


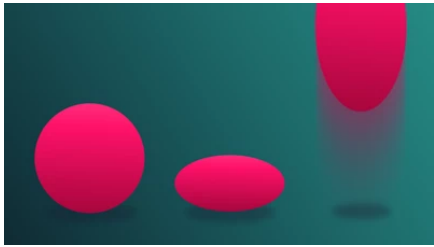
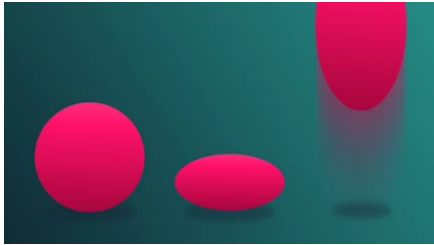
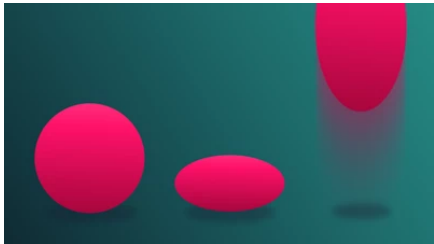
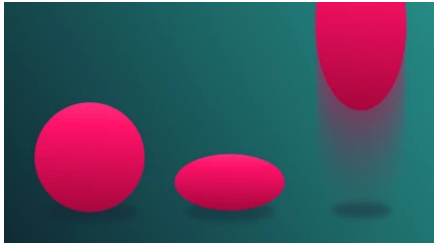
Mission 04: Animation

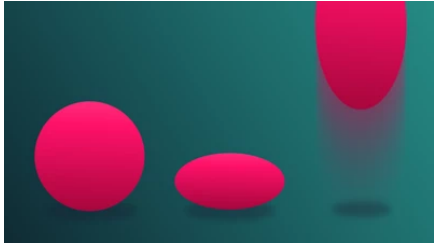
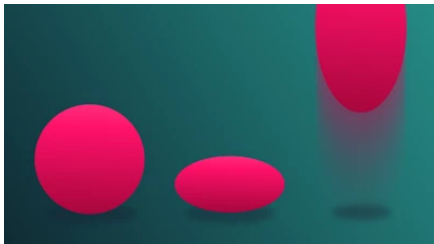
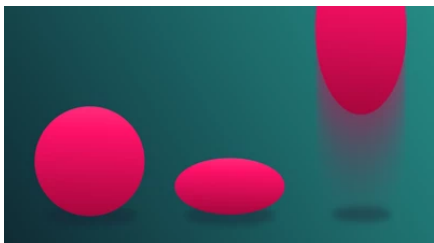
The world around you is in constant motion. The same is true for digital worlds. A static environment tends to appear unfinished or cold and unfeeling; animation is all about creating the illusion of life. In this mission, you will learn how to create animations in the Unity Editor and how to configure animations imported from an external program. You'll apply these concepts to add animation to objects and characters in your scenes, and even control when the animation gets played.



- By the end of this mission, you'll be able to:
- Describe the relationship between different animation components.
 - Create simple keyframed 3D animation sequences.
 - Describe key components of an Animator Controller.
 - Configure Animation Clips imported from third-party 3D modeling software or the Asset Store for use in a project.
 - Configure a humanoid rig for use with the Humanoid Animation system.

1	<div>Get started with animation</div> 	<p><i>In this tutorial you'll learn about the role and responsibilities of animators and set up your project to begin animating.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Define the different rig types and their uses.</i>
2	<div>Create your first 3D animations</div>	<p><i>In this tutorial, you'll learn the basic principles of animation and the tools available to you in Unity by animating a ball. This is a classic exercise for new animators, both digital and traditional alike.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Set up a new Animation Clip.</i>

		<ul style="list-style-type: none"> • Record a GameObject animation using Record Mode. • Add keyframes to an Animation Clip. • Adjust multiple keyframes at once.
3	Refine your animation 	<p><i>In this tutorial, you'll learn about the Curve editor and explore some basic animation principles.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Edit the values of an Animation Curve. • Add keyframes to an Animation Clip. • Record a GameObject animation using Record Mode. • Adjust multiple Keyframes at once.
4	Control animation with an Animator 	<p><i>In this tutorial, you'll create a door that animates based on the proximity of the player. In doing so, you'll learn about Animators, Animator Controllers, and basic State Machines.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Set up a new Animation Clip. • Record a GameObject animation using Record Mode • Add keyframes to an Animation Clip. • Identify the purpose of a specified parameter. • Describe the relationship between parameters and transitions.
5	Import animation 	<p><i>In this tutorial, you'll learn how to configure imported animation and use it in an already existing project.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Define the different rig types and their uses. • Describe how an avatar is used with a humanoid rig to share animation. • Describe how an avatar is used with an Animator Controller to control animation. • Apply imported Animation Clips to rigged models in Unity. • Configure a humanoid rig to share animations between characters. • Trim Animation Clips to access specific keyframed sequences within them. • Create a new Animator Controller for an imported rig. • Share Animator Controllers between humanoid rigs.

		<ul style="list-style-type: none"> • <i>Identify the purpose of a specified parameter.</i> • <i>Describe the relationship between parameters and transitions.</i>
6	Challenge: Bring the scene to life 	<p><i>In this challenge, you'll be tasked with creating at least five new in-editor animations and configuring at least one character to use three new imported animations that you source yourself.</i></p> <p><i>By the end of this tutorial, you'll be able to demonstrate your new skills in animation.</i></p>
7	Apply animation to your guided project 	<p><i>Now it's time to apply what you have learned about animation to your guided project!</i></p>
8	Mission checkpoint 	

Mission 05: VFX




VFX are simulated motion effects added to enhance a scene, ranging from a subtle splash of water to a massive fiery explosion.



In this mission, you will learn to create your own visual effects, including fire, weather effects, and a puff of smoke.




By the time you complete this learning experience, you will be able to:



- Decide whether to use Unity's Particle Systems or VFX Graph in order to produce an effect in your scene.
- Produce environmental and burst effects by configuring Unity's Particle System object.
- Interpret a simple VFX Graph asset.

1	<p>Get started with VFX</p> 	<p><i>VFX are simulated motion effects added to enhance a scene, ranging from a subtle splash of water to a massive fiery explosion. In this tutorial, you will learn what VFX are, who makes them in the industry, and then you will tinker with a fire effect in Unity.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Define the acronym VFX.</i> • <i>Explain different applications of VFX in real-time 3D experiences, such as gameplay and environmental effects.</i> • <i>Describe the impact that VFX can have on the level of polish in a project.</i> • <i>Understand the differences between Unity's Particle System and VFX Graph.</i>
	<p>Play around with a Particle System</p> 	<p><i>More complex effects, like a campfire, might actually be made up of multiple individual Particle Systems. A fire could have flames, smoke, and sparks. In this tutorial, you'll explore the individual elements of a fire, and then play around with the properties of those elements to produce a unique result.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Explain how individual Particle Systems can be combined to create more complex effects.</i> • <i>Understand the purpose of the three default modules in a Particle System: Emission, Shape, and Renderer.</i>
	<p>Create an environmental Particle System</p> 	<p><i>Particle Systems are surprisingly versatile. With just a few changes to a Particle System's modules, you can produce a wide variety of effects. In this tutorial, you will create a brand new Particle System and configure its modules to create snow or rain in the scene.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Set up a new Particle System in the scene.</i>

		<ul style="list-style-type: none"> • Configure a Particle System's main properties, such as lifetime, size, and max particles, by modifying the Main module. • Control the location and initial direction of particles by modifying the Shape module. • Control the rate and timing of particles by modifying the Emission module. • Control the appearance of individual particles by modifying the Renderer module.
	<p>Create a burst particle</p> 	<p>Some VFX are triggered by a user's actions, which makes the application feel more responsive and dynamic. In this tutorial, you will create a new smoke burst effect, then allow the user to generate that effect whenever they want to ignite or extinguish the fire.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Create a single burst of particles, rather than a continuous emission over time by using the Bursts section of the Emission module. • Add randomness to a Particle System by using the Random Between Two Constants feature. • Change the color of a particle over its lifetime by using the gradient editor and the Color Over Lifetime module. • Change the size of a particle over its lifetime by using the Curve editor in the Size Over Lifetime module.
	<p>Experiment with VFX Graph</p> 	<p>VFX Graph is a powerful feature that allows users to create incredibly complex effects and simulations, which are still highly optimized. In this tutorial, you will add a few new VFX Graph effects to your scene and play around with their properties in the VFX Graph editor.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Understand the differences between Unity's Particle System and VFX Graph in order to select the appropriate tool for a given use case. • Recognize whether a particle effect has been created using the Particle System or VFX Graph. • Add a new VFX Graph asset to the scene.

		<ul style="list-style-type: none"> • Explain the role of each of the four default context nodes in a VFX Graph asset: Spawn, Initialize Particle, Update Particle, and Output Particle. • Navigate in the VFX Graph editor window by using the keyboard and mouse. • Perform simple edits to an existing VFX Graph asset, such as changing the emission rate or particle lifetime.
	Challenge: Add some magic to your scene 	<p><i>VFX have the power to add intrigue, mystery, and whimsy to your environments. In this tutorial, you will attempt to add a sense of magic to your scene with fireflies, shooting stars, or some other effect of your choice.</i></p> <p><i>By the end of this tutorial, you'll be able to demonstrate your new skills in particles and visual effects.</i></p>
	Apply VFX to your guided project 	<p><i>Now it's time to apply what you have learned about VFX to your guided project!</i></p>
	Mission checkpoint 	

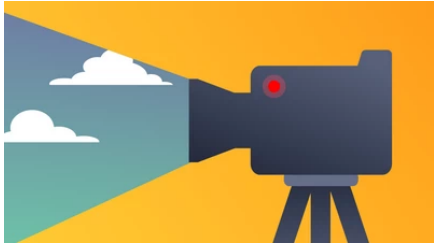
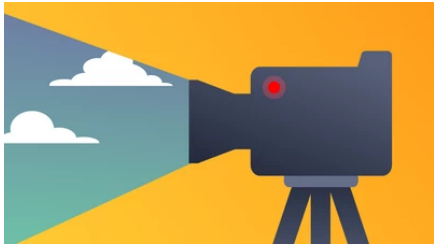
Mission 06: Cameras

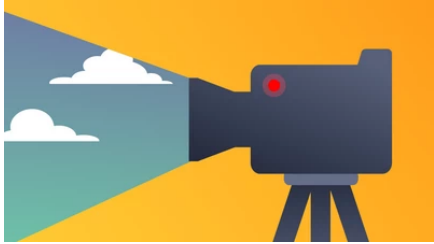
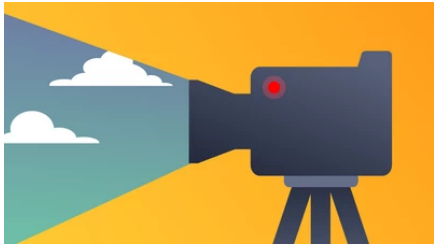
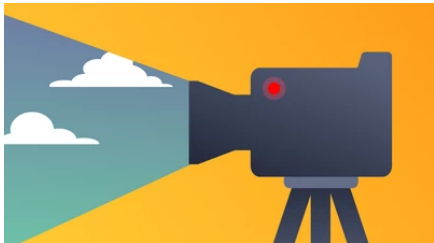
Cameras are your eyes into an interactive experience. They can be fully dynamic, fixed, or tied to a character. In this mission, you'll explore the different camera types common to interactive experiences. You'll also learn some basic camera shot terminology and practice recreating iconic scenes from popular media.

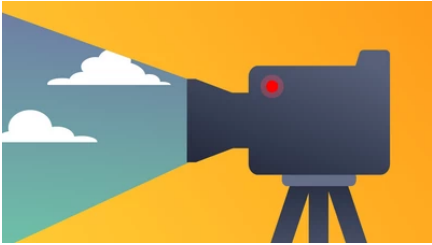
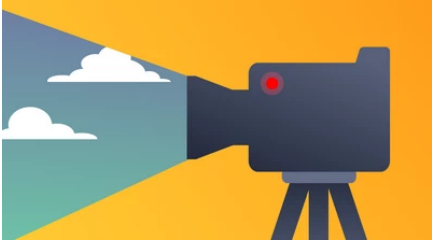
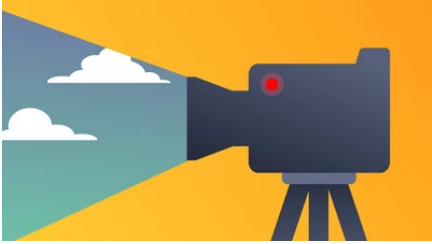


By the end of this mission, you'll be able to:

- Decide which camera setup to use, given a project's requirements.
- Configure a single Unity camera in a 2D or 3D scene.

1	Get started with cameras 	<p><i>In this project, you'll learn how to work with cameras both from a technical and design perspective.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• Distinguish between various camera viewpoints in order to give end users the appropriate orientation to the scene.• Explore the effects of camera setup on the user's experience.
2	Select your camera projection type 	<p><i>In this tutorial, you'll learn about projection settings: the parameters that control how the camera renders what appears inside its frame.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• Identify use cases for a perspective camera view in a 2D or 3D scene.• Identify use cases for an orthographic camera view in a 2D or 3D scene.• Capture the desired view of the scene by controlling the position and rotation of the Main Camera.• Set up a camera for a specified/predetermined point of view.• Set up a perspective camera view in a 3D scene.• Set up an orthographic camera view in a 3D scene.
3	Control what your camera	<p><i>In this tutorial, you'll learn how to fine tune what appears</i></p>

	sees 	<p><i>within the camera view with clipping planes, culling masks, and environment properties.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Fill in the background of the Main Camera view.</i> • <i>Control the field of view of the Main Camera by adjusting the frustum.</i> • <i>Control the depth of view of the Main Camera by configuring the clipping planes.</i>
4	Explore camera views 	<p><i>In this tutorial, you'll explore some of the most popular camera views and learn about when they're best used.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Identify use cases for a perspective camera view in a 2D or 3D scene.</i> • <i>Identify use cases for an orthographic camera view in a 2D or 3D scene.</i> • <i>Explore the effects of camera setup on the user's experience.</i> • <i>Distinguish between various camera viewpoints in order to give end users the appropriate orientation to the scene.</i>
5	Explore camera shot types 	<p><i>In this tutorial, you'll learn about some of the most popular camera shot types and how they can be used to contribute to the overall mood of a scene.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Distinguish between various camera viewpoints in order to give end users the appropriate orientation to the scene.</i> • <i>Identify use cases for a perspective camera view in a 2D or 3D scene.</i> • <i>Identify use cases for an orthographic camera view in a 2D or 3D scene.</i> • <i>Explore the effects of camera setup on the user's experience.</i>
6	Challenge: Recreate the scene	<p><i>In this final challenge, you'll be tasked with recreating one of your favorite scenes from media in Unity.</i></p> <p><i>By the end of this tutorial, you'll be able to demonstrate your new skills in cameras.</i></p>

		
7	Apply cameras to your guided project 	<i>Now it's time to apply what you have learned about cameras to your guided project!</i>
7	Mission checkpoint 	

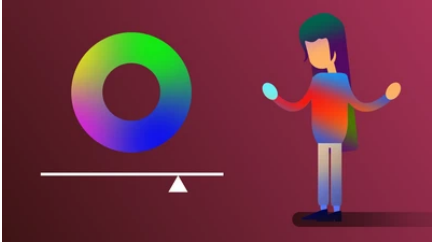
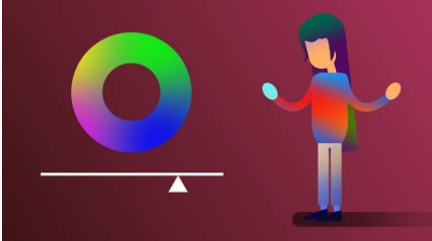
Mission 07: Post-processing

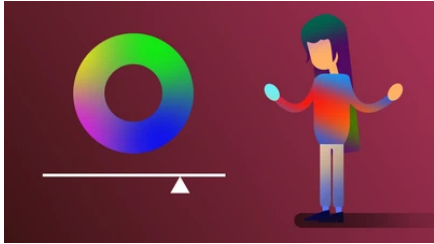
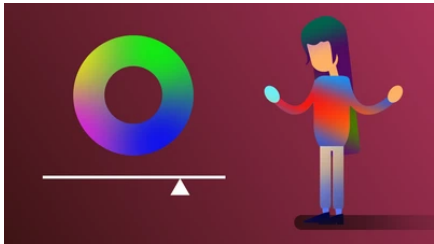
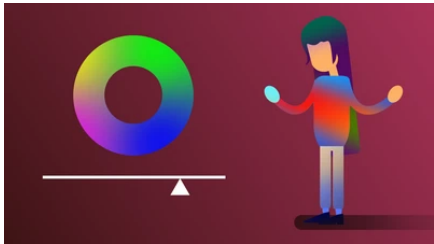
Post-processing is just like applying filters to a photo you take with your phone. This can make your scene look more beautiful and interesting. In this mission, you will use post-processing to achieve a particular look and feel in a scene.

By the time you complete this learning experience, you will be able to:

- Evaluate whether post-processing is an appropriate tool for a given goal.
- Implement a particular visual style in a project by configuring a post-processing profile.



1	<p>Apply cameras to your guided project</p> 	<p><i>Post-processing is just like applying filters to your photos. It can make your scene look more beautiful, interesting, or stylized. In this tutorial, you'll learn when and why you might use post-processing, then open Unity and enable post-processing in your scene.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Define post-processing and the purpose of a post-processing profile.</i>• <i>Explain the purpose of post-processing, including visual style and visual fidelity.</i>• <i>Set up post-processing in a scene.</i>
2	<p>Create your own post-processing profile</p> 	<p><i>A post-processing profile can radically alter the visuals in your scene. In this tutorial, you will create your own post-processing profile to achieve a particular visual style in the project.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Use common post-processing effects, such as Bloom, Depth of Field, Tonemapping, and color adjustments.</i>• <i>Modify a post-processing profile to achieve a particular style.</i>• <i>Appreciate the tradeoff between improved visuals and the cost to performance that comes with post-processing effects.</i>

		<ul style="list-style-type: none"> Describe the purpose of a post-processing profile.
3	<p>Challenge: Create a local volume</p> 	<p>A local volume allows you to define a completely different visual style within a single scene. In this tutorial, you'll create a new post-processing profile and apply it to a particular area of the scene.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> Add a new local post-processing volume to the scene and edit its boundaries. Describe scenarios where a global volume or local volume would be more appropriate. Demonstrate your new skills in post-processing.
4	<p>Apply post-processing to your guided project</p> 	<p>Now it's time to apply what you have learned about post-processing to your guided project!</p>
5	<p>Mission checkpoint</p> 	

Mission 08: Audio

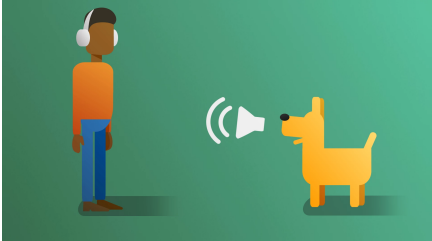
Audio is one of the most overlooked aspects of interactive development, but it's also one of the first things that can disrupt a user's immersion if it's done poorly — or worse, if it's completely forgotten about.

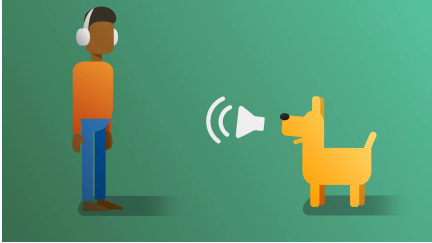
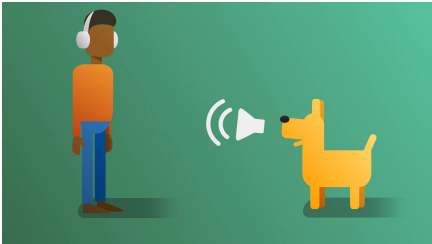
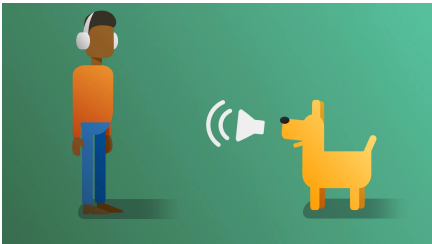
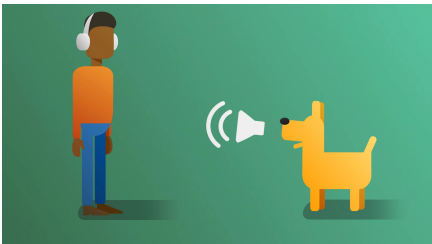
In this mission, you will learn how to implement audio effects in Unity by creating a soundscape for an outdoor scene. You'll create ambient audio effects, trigger sounds with events, and modify sounds with special effects.

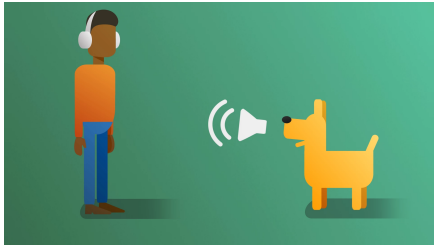
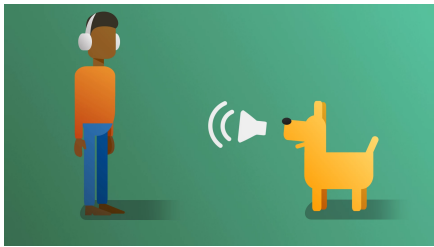
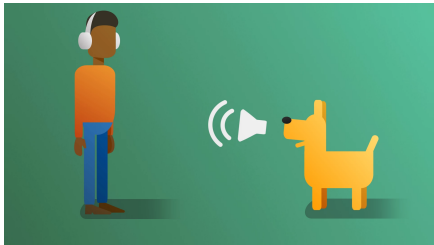


By the end of this mission, you'll be able to:

- Implement audio in Unity.
- Produce customized results by correctly configuring audio in a scene.
- Create interactive experiences by synthesizing audio experience design principles.
- Refine existing audio in a Unity project.
- Solve accessibility challenges in an audio design.
- Create a particular visual style in a project by configuring a post-processing profile.

1	<div><div>Get started with audio</div><div></div></div>	<p><i>In this project, you'll bring a scene to life using audio effects. You'll explore the different ways audio is perceived and implement ambient and event-based sound. You'll also learn a bit about accessibility considerations for audio and how you can build a more inclusive experience by implementing closed captioning.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Describe the science of audio in digital environments.</i>• <i>Recommend audio source file formats that can be used in a given project.</i>• <i>Explain the role of audio in supporting narrative and worldbuilding.</i>• <i>Explain the difference between diegetic and nondiegetic sound.</i>• <i>Describe the primary types of audio found in real-time projects.</i>• <i>Explain the role of audio in developing atmosphere.</i>
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2	<p>Create dynamic sound effects</p> 	<p><i>In this tutorial, you'll begin the process of creating a complex soundscape by adding footstep sound effects to the player character.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Choose time-based or action-based methods, such as triggers or events, to play audio clips. • Explain the role of audio in developing atmosphere.
3	<p>Create 3D sound effects</p> 	<p><i>In this tutorial, you'll add sound to the waterfall and customize it to suit the scene's needs.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain the role of audio in supporting narrative and worldbuilding. • Explain the role of audio in developing atmosphere. • Simulate different types of audio sources by applying custom roll-offs. • Describe the science of audio in digital environments.
4	<p>Add special effects to existing audio</p> 	<p><i>In this tutorial, you'll create an echo effect using an audio reverb zone.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Add special audio effects to a scene. • Describe the science of audio in digital environments. • Explain the role of audio in developing atmosphere. • Control the priority of different audio sources in a scene by setting Priority settings.
5	<p>Accessibility considerations for audio</p> 	<p><i>In this tutorial, you'll add closed captioning to your scene to add an extra level of accessibility to your project.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Add subtitles to a Unity project. • Recommend optimization techniques for audio, given a target platform. • Choose time-based or action-based methods, such as triggers or events, to play audio clips.

		<ul style="list-style-type: none"> • <i>Add special audio effects to a scene.</i>
6	Challenge: Your own soundscape 	<p><i>In this final challenge, you'll take everything that you have learned and create a soundscape for a new environment.</i></p> <p><i>By the end of this tutorial, you'll be able to demonstrate your new skills in audio.</i></p>
7	Apply audio to your guided project 	<p><i>Now it's time to apply what you have learned about audio to your guided project!</i></p>
8	Mission checkpoint 	

Mission 09: UI

A user interface is what allows a user to interact – or interface – with an application. A UI often includes images, text, buttons, toggles, sliders, or dropdowns.


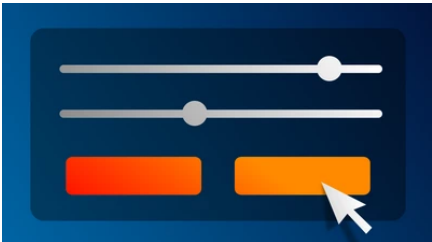
In this mission, you will design your own title screen and functional settings menu.


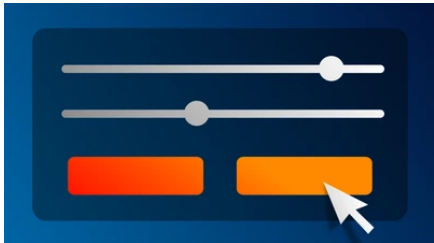
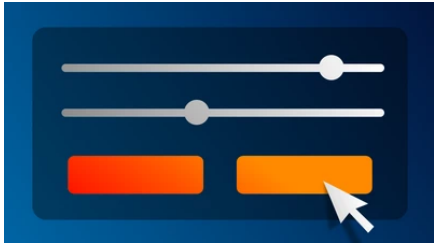
By the time you complete this learning experience, you will be able to:



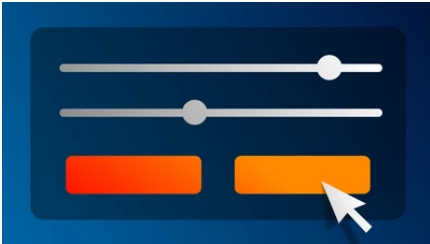
- Decide on a user interface approach for a project.



- Create and configure visual UI components in a manner that will respond appropriately to different screen sizes and resolutions.
- Create and configure interactive UI components, such as buttons, toggles, and sliders, to implement simple UI functionality.

1	<p>Get started with user interfaces</p> 	<p><i>A user interface (UI) is what allows a user to interact with a program, and a UI designer is responsible for making those interactions as clear and enjoyable as possible. In this tutorial, you'll learn a bit more about what UI design is and the tools available in Unity to help you create UIs. Then, you'll open your project and begin customizing your scene.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Define "UI" and the role of user interfaces in real-time 3D experiences. • Differentiate between UI design and other related disciplines, like User Experience Design and Information Architecture. • Distinguish between Unity's three available UI systems: uGUI (or Unity UI), IMGUI (or "Immediate Mode" GUI), and UI Toolkit.
2	<p>Add a title to your scene</p> 	<p><i>Text is arguably the most critical element of any UI. So, when you add text elements, you should also make sure it's easy for everyone to read. In this tutorial, you'll add title text to your project, then make sure it meets basic accessibility requirements.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Add text elements (labels) to the screen. • Customize text element styling in the Inspector. • Recall essential accessibility considerations for UI, such as font choice, text size, color contrast, and content.
3	<p>Manage screen size and anchors</p>	<p><i>You can spend a ton of time making your UI look perfect on your screen, but what happens if someone opens your application on a screen with a different size or a different shape? In this tutorial, you'll learn how to consider the screen's aspect ratio and use Canvas Anchors to make sure your UI elements stay where you want them to.</i></p>

		<p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Preview different aspect ratios for your project. • Understand the role of the Canvas GameObject in designing a UI. • Position 2D elements on screen by using the Rect Transform component and Rect tool. • Control how UI elements scale, rotate, and reposition relative to other objects on screen by editing the anchor and pivot points. • Anchor a UI element to different parts of a Canvas by using presets and by positioning it manually. • Control how the entire UI responds to changes in screen resolution by understanding different Canvas Scaler modes.
4	<p>Create a menu background with images</p> 	<p>Images are critical in the design of UIs, from simple backgrounds and icons to more complex heads up displays and dashboards. In this tutorial, you will add custom images for your settings menu background and button, making sure they still look good if they're stretched in different directions.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Add Image elements. • Apply and configure UI sprites. • Apply and configure materials to an Image component.
5	<p>Add basic button functionality</p> 	<p>A button is the simplest and most common interactive UI element. Without buttons, you couldn't get very far. In this tutorial, you will make your buttons functional using Unity's Event System.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Understand the role of the EventSystem GameObject in developing interactive UIs. • Identify use cases for buttons in various UIs. • Implement simple button functionality by using the Event System.

6	<p>Add toggles and sliders</p> 	<p><i>As a UI becomes complex, you will inevitably need to implement toggles and sliders, which each give the user a unique way to interact with an application. In this tutorial, you will add a toggle that allows the user to turn music on and off and a slider that allows them to control the volume.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Identify use cases for Sliders and Toggles in UI design.</i> • <i>Implement simple toggle functionality by using the Event System.</i> • <i>Implement simple slider functionality by using the Event System.</i>
7	<p>Challenge: Make a workspace UI</p> 	<p><i>A worldspace UI can exist in the three dimensional world, just like any other GameObject. This allows you as a UI designer to create completely different types of interactions, compared with a traditional Screen Space UI. In this tutorial, you will learn more about the use cases for workspace UIs, then design a new version of your UI in world space.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • <i>Identify the use cases for different Canvas render modes: Screen Space - Overlay, Screen Space - Camera; World Space.</i> • <i>Demonstrate your new skills in user interfaces.</i>
8	<p>Apply UI to your guided project</p> 	<p><i>Now it's time to apply what you have learned about user interfaces to your guided project!</i></p>
9	<p>Mission checkpoint</p>	



Mission 10: Prototyping


Before you get caught up in developing your dream project, it's important to start a little smaller and create a prototype. Prototyping gives you the opportunity to work out what should really be at the heart of the real-time experience you want to make and to test out different approaches to achieve that.




In this mission, you'll learn about some different approaches to prototyping and explore an example we've created as you work on your own prototype. This learning experience is about process rather than a set outcome; if you're new to prototyping, we hope you'll find something useful no matter what you want to create!

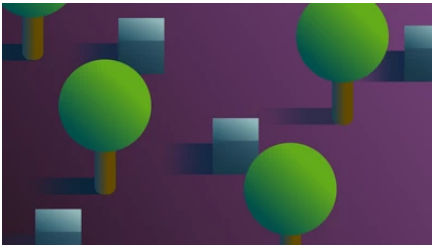






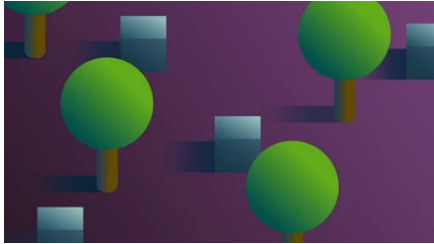

By the time you complete this learning experience, you'll be able to:

- Determine the appropriate prototyping approach for a specific project.
- Decide the critical project features required in order to create a functional prototype.
- Create a functional prototype in Unity.
- Integrate external assets and tools into your prototype.
- Refine a prototype environment using ProBuilder and Terrain.
- Test a basic experience prototype.

1	<div><div>Get started with prototyping</div><div></div></div>	<p><i>Before you get caught up in developing your dream project, it's important to start a little smaller and create a prototype. Prototyping gives you the opportunity to work out what should really be at the heart of the real-time experience you want to make and to test out different approaches to achieve that.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none">• <i>Explain the purpose of prototyping.</i>
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		<ul style="list-style-type: none"> • Explain the difference between rapid and evolutionary prototyping.
2	Choose a prototype idea 	<p>You've explored the background of prototyping, now it's time to get specific. You might have a specific idea for a prototype already in mind, a range of concepts to choose between, or be uncertain where to start. Wherever you're starting from, we'll guide you through the process.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Identify a prototype concept. • Identify target users for a prototype. • Write an elevator pitch for a prototype.
3	Plan and scope your prototype 	<p>Now that you've identified an idea and your target audience, you can start planning your prototype in a lot more detail.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Explain the importance of scoping and incremental iteration in the prototyping process. • Identify key features and requirements for a prototype. • Scope which features are required to deliver a minimum functional prototype.
4	Create your graybox prototype 	<p>Planning complete, you can now get started working in Unity! You'll start by working on a graybox of your prototype, where primitive 3D shapes (which are often gray) are used to block out the scene so you can implement the basic functionality.</p> <p>By the end of this tutorial, you'll be able to:</p> <ul style="list-style-type: none"> • Graybox a basic functional prototype. • Import a third-party character controller.
5	Build on your basic prototype	<p>Now that you've got a basic graybox prototype, it's time to develop it so it's closer to the final experience that you want to deliver.</p> <p>By the end of this tutorial, you'll be able to:</p>

		<ul style="list-style-type: none"> • Explain the importance of scoping and incremental iteration in the prototyping process. • Evaluate a prototype against key requirements. • Refine a prototype experience. • Identify third-party assets and resources for a prototype. • Create an asset inventory.
6	<p>Enhance your prototype with ProBuilder</p> 	<p><i>ProBuilder is a package that you can use to build, edit, and texture custom geometry (3D shapes) in Unity. You can use it to create all sorts of objects in your environment that go beyond combinations of primitives.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain how ProBuilder can support prototype development. • Create meshes using ProBuilder. • Configure geometry to make basic scenery for a prototype. • Set a Collider for a mesh. • Set a mesh as a trigger.
7	<p>Enhance your prototype with Terrain</p> 	<p><i>Terrain is the landscape of an interactive experience. Unity 2020.3 LTS includes a series of Terrain features that you can use to create a custom landscape that's right for your prototype.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain how Terrain can support prototype development. • Create a new Terrain. • Customize Terrain for your prototype.
8	<p>Test your prototype</p> 	<p><i>Testing is a critical aspect of refining and completing your prototype.</i></p> <p><i>By the end of this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Explain the importance of different types of testing in prototype development.

		<ul style="list-style-type: none"> • Complete acceptance tests against prototype requirements. • Identify unexpected behavior in a prototype. • Conduct user testing for a prototype.
9	Challenge: Complete your independent project 	<p><i>In this challenge, you'll apply what you've learned throughout the Creative Core pathway to your prototype.</i></p> <p><i>By the end of this tutorial, you'll be able to demonstrate your new skills from each domain in the Creative Core pathway.</i></p>
10	Plan your next steps 	<p><i>As you finalize and prepare to submit your independent or guided project, take some time to reflect on your accomplishments and explore possibilities as a real-time 3D creator.</i></p> <p><i>In this tutorial you will:</i></p> <ul style="list-style-type: none"> • Plan to update your portfolio to support changing priorities and skills. • Research sources of continuous learning in real-time 3D.
11	Entry-level freelancing for creators 	<p><i>Freelancing is an excellent way to pursue a career as a real-time creator. Freelancing can expose you to a wider variety of projects and teams, and the pace of freelancing can accelerate your career. However, it can also be challenging. It demands a high degree of professionalism and flexibility. If you're up for the challenges of freelancing but don't know how to get started, this tutorial is for you.</i></p> <p><i>By the time you complete this tutorial, you'll be able to:</i></p> <ul style="list-style-type: none"> • Identify the key challenges and opportunities of entry-level freelancing roles in real-time 3D industries. • Research entry-level freelance roles that align with your personal experience and goals. • Make a plan to build a portfolio to help launch a freelance career.

12	Mission checkpoint 	
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Grading and rubrics

Overview

This pathway provides three avenues of assessment: quizzes, a guided project using provided assets, and an optional independent project.. Beyond this, learners are also encouraged to create their own projects in parallel with the guided projects.

- 40%: Guided Project | 10 × 4% each
- 40%: Independent project | 10 × 4% each
- 20%: Quizzes | 10 × 1% each

* Note that these weight values are only suggestions

Guided project

Weight	40% (10 × 4% each)		
Description	Students are given a choice between 3 different projects. In each module, they will apply the skills and knowledge from that module on this project in a guided fashion.		
Purpose	To give students an opportunity to apply the skills they have learned in a practical but controlled way.		
4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
<ul style="list-style-type: none"> - All tasks from the module are completed - All functionality present and operating 	<ul style="list-style-type: none"> - Most tasks from the module are completed - All functionality present and operating 	<ul style="list-style-type: none"> - Some tasks from the module are completed - Some functionality missing and overall 	<ul style="list-style-type: none"> - Barely any tasks from the module are completed - Most functionality

exactly as expected - Project demonstrates a clear design sensibility and takes users into account - Project achieves learning objective	mostly as expected - Project takes users into account - Project achieves learning objective	not operating as expected - Project shows some evidence of taking users into account - Project partially achieves learning objective	absent - Project does not demonstrate an awareness of the user - Project does not demonstrate goal or learning objective at all
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Independent project

Weight	40% (10 × 4% each)		
Description	Students are encouraged to create their own project that runs in parallel with the guided projects. In each module they will apply the skills and knowledge from that module to their own project.		
Purpose	To give students an opportunity to apply the skills they have learned in a practical and less controlled environment.		
4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
<ul style="list-style-type: none">- All tasks from the module are implemented in the independent project- All functionality present and operating exactly as expected- Project demonstrates a clear design sensibility and takes users into account- Project achieves learning objective	<ul style="list-style-type: none">- Most tasks from the module are implemented in the independent project- All functionality present and operating mostly as expected- Project takes users into account- Project achieves learning objective	<ul style="list-style-type: none">- Some tasks from the module are implemented in the independent project- Some functionality missing and overall not operating as expected- Project shows some evidence of taking users into account	<ul style="list-style-type: none">- Barely any tasks from the module are implemented in the independent project- Most functionality absent- Project does not demonstrate an awareness of the user- Project does not demonstrate goal or learning objective at all

		- Project partially achieves learning objective	
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Quizzes

Weight	20% 10 × 2% each)
Description	Students complete up to 10 multiple choice questions.
Purpose	To give students the opportunity to apply and check their knowledge in a decontextualized environment, which will also help prepare them for the Unity Certified User exam.

4 - Excellent	3 - Good	2 - Fair	1 - Unsatisfactory
9-10 out of 10 correct	7-8 out of 10 correct	5-6 out of 10 correct	Fewer than 5 out of 10 correct

Optional growth mindset rubric

Derived from the work of Stanford University Professor Carol Dweck, “growth mindset” is the understanding that we can incrementally develop our abilities and intelligence indefinitely through practice and effort. The opposite of a growth mindset is a “fixed mindset”: the belief that your intelligence and abilities are fixed or limited. A fixed mindset can be dangerous for learners because it can cause them to give up. A growth mindset underpins the desirable learning behaviors of resilience and grit, i.e., perseverance when learning becomes difficult.

Growth	Mixed	Fixed
<ul style="list-style-type: none"> - Look forward to the next challenge - See mistakes as temporary setbacks; something to be overcome - Reflect on what you learned and apply that learning 	<ul style="list-style-type: none"> - Take on challenges after having success in related challenges - Motivated by feedback when it isn't too critical and if you are comfortable with the person providing feedback 	<ul style="list-style-type: none"> - Do not want to take on challenges alone - See mistakes and failures as proof the task is too difficult and not worth pursuing - Avoid feedback or see it as a reason to give up

<ul style="list-style-type: none"> - Invite feedback and criticism and apply it to improve your project - Use different strategies and ask others about their strategies - Show stamina while working on your project until it is complete - Ask specific questions, including questions about your own thinking, and challenge others' ideas - Show confidence in taking risks and happily share mistakes you make and what you learn 	<ul style="list-style-type: none"> - Open to strategies that help to meet a challenge but tend to work on things you are already "good at" - Persevere with prompting and support - Ask questions about things in Unity that you feel more confident with but less likely to do so if it is outside your comfort zone - Take risks if the task is already fairly familiar to you 	<ul style="list-style-type: none"> - Do not demonstrate any effective strategies for accomplishing project tasks or goals - Show little or no persistence through challenges - Do not ask questions or seek guidance and support - Do not take risks
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