

VR Development pathway



Teacher preparation guide

What is the Virtual Reality Development pathway?

This learning pathway is designed for anyone interested in learning to create experiences for VR. This pathway assumes a basic knowledge of Unity and basic knowledge of programming



Who this pathway is for

The **VR Development** pathway is primarily for people who already have experience programming with Unity and want to apply those skills to VR.

If you want to create simpler VR experiences that do not use any custom code, you can take the [Create with VR](#) course. It does not require any programming knowledge.

If you want to work in VR development but don't have any programming skills, we recommend that you complete the [Junior Programmer](#) pathway first or alongside this pathway. The Junior Programmer pathway will give you the fundamentals of programming required to complete this course.

If you are unsure whether your programming skills are strong enough to complete this pathway, you can take [this pre-assessment quiz](#). We will ask you to take this quiz later in the pathway before the tutorials where programming is required.

Key details of the pathway

- A 45-70 hour learning journey that teaches VR application and games development with Unity.
- The **VR Development** pathway development covers everything needed to develop your skills in VR basics, Events and interactions, Ergonomics and Optimization, and Custom VR Development.
- By the end of this pathway, learners will have created at least one virtual reality project and be empowered to create interactive experiences.

Table of contents

Teacher orientation	2
Design your educational experience	4
Getting started checklist	8

Teacher orientation

1a. Familiarize yourself with the pathway content and available resources For a detailed breakdown, see the Syllabus document	
Objectives of the pathway	<ul style="list-style-type: none">• Beginner VR Development: deploy VR projects to Unity-supported head-mounted displays (HMDs).• Beginner VR Development: develop a VR app that demonstrates common interactions using Unity's XR interaction toolkit.• Beginner VR Development: program custom VR interactions in order to meet the requirements in a project brief.• Beginner VR Development: optimize the performance of an app in order to meet headset frame rate requirements.• Beginner VR Design: evaluate a proposed VR experience in order to suggest ways it could be improved.• Beginner VR Design: decide which XR hardware to target, given the goals of a particular project.
Pathway requirements	<ul style="list-style-type: none">• Mac or PC with standard mouse required (headphones recommended)• Access to VR HMD• 2 weeks minimum
Pathway structure	<ul style="list-style-type: none">• Lessons• Guided projects• Independent project• Quizzes
Teacher documents	<ul style="list-style-type: none">• Syllabus• Lesson plans• Standards alignment• Unity educator resource links• Tips for Teachers

Design your educational experience

2a. Adapting VR Development pathway content for different teaching approaches and contexts

This guide takes into account in-person, blended, and fully virtual educational settings, and the following table offers some guidance on adapting this learning experience for your teaching approaches and circumstances.

Facilitator-led	<p>The step-by-step and modular structure of the pathway allows for facilitator-led teaching.</p> <p>As an instructor/facilitator for a learning experience based around the VR Development pathway, your most valuable contributions are likely to be the following:</p> <ul style="list-style-type: none"> • Facilitating discussion around the various topics and showcasing industry examples for context. • Asking questions to consolidate and deepen student understanding of new concepts. • Troubleshooting participant technical issues.
Flipped classroom/instruction	Pre-class work can be assigned by tutorial or mission within the VR Development pathway. Presentations or peer review feedback on the personal project sessions are also ideal for the flipped classroom.
Asynchronous learning	The VR Development pathway is a complete course with all relevant instructions presented in a mix of video and text. All resources required for specific tutorials are also linked under that tutorial. This could allow for asynchronous learning where learners can go through the course at their own pace. We suggest combining this with peer review sessions or instructor check-ins to ensure everyone is on track and progressing.

Share your unique insights

Whichever approach you decide on, make sure to share your own experience, insights, and perspectives with participants, and by providing this, you'll help participants develop their understanding of the realities of game development and real-time applications.

2b. Review common pathway configurations					
	Main tutorials	Guided project and quizzes	Independent projects	Percentage teacher - led vs percentage in-class	Relevant affordances and constraints
1: Teacher-led	Teacher-led In-class	Independent In-class	Teacher-led In-class	80% teacher-led 100% in-class	Students can't work at home. You want complete control.

					You feel confident with material or can spend time on training.
2. Teacher-assisted	Video-led In-class	Independent In-class	Video-led In-Class	0% teacher-led 100% in-class	Students can't work at home. You do not feel confident with material yet and/or do not have time for training.

2c. Determine your unique classroom affordances and constraints

Available hardware?	<ul style="list-style-type: none"> In your classroom, do you have a way of projecting or displaying your own computer's screen so that the entire class can see it. (If Yes, allows for teacher-led in-class or video-led in-class activities.) 	Yes No
	<ul style="list-style-type: none"> Can a set of headphones be included at each computer station. (If Yes, allows for independent in-class activities.) 	Yes No
	<ul style="list-style-type: none"> Do you have access to at least one VR HMD. 	Yes No
Student work at-home?	<ul style="list-style-type: none"> Can all of your students access a computer that can run Unity outside of class time? This could include getting access to the computer lab outside of their normal class period. (If Yes, allows for at-home activities.) 	Yes No
	<ul style="list-style-type: none"> Do students have access to VR HMDs? (If Yes, allows for at-home activities.) 	Yes No
Experience with material?	<ul style="list-style-type: none"> Do you (a) have ~40 hours to dedicate to training and learning the material before the course begins or (b) already have a lot of experience teaching Unity and C#? (If Yes, teacher-led activities are an option for you. If No, independent or video-led activities may be best to start.) 	Yes No

2d. Determine how much of the pathway you should aim to complete

Determine if you can finish the entire pathway	How many combined in-class hours and at-home hours (if any) will the students have to work on this course?	___ weeks
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	The entire pathway takes approximately 10 weeks (40-50hrs) to complete independently but can take longer in a classroom depending on class size, experience, amount of time given to work on personal projects, and other factors. How long do you think it would take for your class to complete the pathway?	___ weeks
Units or activities to exclude from curriculum (if any)	The VR Development pathway consists of self-contained modules, throughout which learners develop a final project. You can choose to exclude certain topics, but this will have an impact on the final project.	Yes No

Getting started checklist

3a. Set up the computer lab and method for students to submit their assignments		
Get Unity licenses	<ul style="list-style-type: none"> You can either (a) apply for a Unity Educational license through the license grant program or (b) have students create individual Unity IDs. 	<input type="checkbox"/>
Install Unity software in computer lab	<ul style="list-style-type: none"> Download Unity Hub and install the latest LTS editor version (including Visual Studio) on all of the computers in the lab, then test to make sure that (a) Unity opens successfully and (b) Visual Studio opens successfully. 	<input type="checkbox"/>
Set up a system for students to submit their work	<ul style="list-style-type: none"> Using your school's learner management system (LMS), Google Classroom, or other systems, make sure your virtual classroom is set up so that students can submit their work. Students can submit screenshots/screencasts of their projects (recommended) or submit .zip files of their Unity assets. <p>Note - It is possible to use version control software like Github or PlasticSCM to track and evaluate students' projects.</p>	<input type="checkbox"/>

3b. Prepare to teach and connect with a support community		
Schedule time for training	<ul style="list-style-type: none"> Regardless of the pathway configuration you have chosen, it is recommended that you complete at least the first unit of the online pathway independently prior to the pathway start date. This will take approximately one hour. If you intend to do any teacher-led activities, it is also strongly recommended that you complete that content in the online pathway independently prior to leading students. 	<input type="checkbox"/>
Connect with the Unity teacher community	<ul style="list-style-type: none"> Join the teacher support community, where you can get help from experts and connect with other new teachers. 	<input type="checkbox"/>