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**](https://learn.unity.com/course/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**](https://learn.unity.com/pathway/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**](https://learn.unity.com/quiz/pre-assessment-for-vr-development). 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.

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# Teacher orientation

| **1a. Familiarize yourself with the pathway content and available resources**  For a detailed breakdown, see the Syllabus document | |
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| **Objectives of the pathway** | * 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** | * Mac or PC with standard mouse required (headphones recommended) * Access to VR HMD * 2 weeks minimum |
| **Pathway structure** | * Lessons * Guided projects * Independent project * Quizzes |
| **Teacher documents** | * [**Syllabus**](https://docs.google.com/document/d/1IHIE7j_JUxpkpWne_viSO_Mtfe0ZOQit63dT1v2LKB8/edit?usp=sharing) * [**Lesson plans**](https://docs.google.com/document/d/1MS84mMODRTVB0o4VP1OL5pRWm_HsKSkDDlzq29L2_No/edit?usp=sharing) * [**Standards alignment**](https://docs.google.com/document/d/1D-dFCaqXYH5RZzSjbSPc98DrP_yE4WKG/edit?usp=sharing&ouid=112346060861834190542&rtpof=true&sd=true) * [**Unity educator resource links**](https://docs.google.com/document/d/1fmJnMb6q6ihC2ylZEnWmr7IcRM7QSgL1/edit?usp=sharing&ouid=112346060861834190542&rtpof=true&sd=true) * [**Tips for Teachers**](https://docs.google.com/document/d/15RC8dR91tJy-VghK9ctOkp92JcwG5Lbo/edit?usp=sharing&ouid=112346060861834190542&rtpof=true&sd=true) |

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# 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** | The step-by-step and modular structure of the pathway allows for facilitator-led teaching.  As an instructor/facilitator for a learning experience based around the **VR Development** pathway, your most valuable contributions are likely to be the following:   * 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. |

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## 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?** | * 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** |
| * Can a set of headphones be included at each computer station. (If Yes, allows for independent in-classactivities.) | **Yes | No** |
| * Do you have access to at least one VR HMD. | **Yes | No** |
|  |  |  |
| **Student work at-home?** | * 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** |
|  | * Do students have access to VR HMDs?   (If Yes, allows for at-home activities.) | **Yes | No** |
|  |  |  |
| **Experience with material?** | * 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, independentor 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** |
| 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** | * You can either (a) apply for a Unity Educational license through the [license grant program](https://unity.com/education/license-grant-program) or (b) have students create individual Unity IDs. |  |
| **Install Unity software in computer lab** | * Download [Unity Hub](https://unity3d.com/get-unity/download) 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. |  |
| **Set up a system for students to submit their work** | * 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.   Note - It is possible to use version control software like Github or PlasticSCM to track and evaluate students’ projects. |  |

| **3b. Prepare to teach and connect with a support community** | | |
| --- | --- | --- |
| **Schedule time for training** | * 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. |  |
| **Connect with the Unity teacher community** | * Join the [teacher support community](https://connect.unity.com/g/unity-teach-community), where you can get help from experts and connect with other new teachers. |  |