

Creating a Game in Roblox Syllabus

Middle School / High School (20 Contact Hours)

Course Overview and Goals

This month-long course is designed to introduce students to the metaverse world of Roblox. Students will learn about the platform, explore the Roblox Studio game engine used to create games for Roblox, build an obstacle course ("obby"), add provided code scripts to the obbies, customize their game, and then publish their creations to Roblox for their friends and family to enjoy.

Learning Environment

While this course adapts the blended learning approach, it can also be delivered within a virtual learning environment. Course content is a combination of web-based and offline activities. Students will access lessons through the CodeHS platform and perform activities directly within the Roblox Studio game engine. Students and instructors will need to sign up for a Roblox account and download the Roblox Studio game engine in order to complete this course. Steps to do so are included within this course.

Programming Environment

Students illustrate comprehension of game design skills using the CodeHS platform and apply their knowledge using the Roblox Studio game engine. Students will create their obstacle course ("obby") games and configure scripts in Roblox Studio. They'll share their projects with their teacher, classmates, friends, and family after publishing their games to the Roblox platform.

Presentations

Students can create a presentation using Google Slides detailing their game design process while creating an obby in Roblox Studio. Teachers have the choice of structuring this slideshow as either having the students deliver an oral presentation or having the students complete and turn in as a hands-on, visual activity.

Prerequisites

Creating a Game in Roblox is designed for middle or high school students with a basic level of technical proficiency or exposure to digital design. Students do not need a background in programming.

More Information

- Browse the content of this course at: <https://codehs.com/course/16680/overview>

Creating a Game in Roblox

Module 1: Intro to Roblox (1 week)

This module will introduce students to the metaverse world of Roblox, explore the concepts of game design, and provide a detailed tour of the Roblox Studio interface and tools used to create games for the Roblox platform.

Objectives / Topics Covered	<ul style="list-style-type: none">● What is Roblox?● Intro to Game Design● Intro to Roblox Studio
Example Assignments / Labs	<ul style="list-style-type: none">● Welcome and Intro to Game Design<ul style="list-style-type: none">○ Students learn about the course and get an overview of the Roblox platform.○ Activities include creation of a Roblox account, downloading the Roblox Studio game engine, and setting goals for the course.● Intro to Game Design<ul style="list-style-type: none">○ Students will reflect on the game design process, examine the elements of a game that make it fun.○ Students will finish the lesson by exploring and playing a few Roblox games.● Intro to Roblox Studio<ul style="list-style-type: none">○ Students will complete hands-on exercises that explore the Roblox Studio game engine and the appropriate tools within used to build games.○ Students will learn how to move the camera in the workspace, and then practice moving a player around in a simulation of their game.○ Additionally, students will learn how to save and publish their games to Roblox.

Module 2: Building in Roblox (1 week)

Students will be able to build a Roblox obstacle course ("obby") game with checkpoints after completing this module. Parts and models will be used to create the obstacles with tools designed to select, move, scale, and rotate added to students' game design toolsets.

Objectives / Topics Covered	<ul style="list-style-type: none">● Working with Parts and Models● Properties● Models● Building Your Obby● Checkpoints
Example Assignments / Labs	<ul style="list-style-type: none">● Working with Parts and Models<ul style="list-style-type: none">○ Students will add parts and models to their workspace in Roblox Studio.○ Students will then select, move, rotate, and resize the objects to get accustomed to the most commonly used game building tools in the interface.

	<ul style="list-style-type: none"> ● Properties <ul style="list-style-type: none"> ○ Students will explore and adjust characteristics of parts called “properties.” Students will adjust color, transparency, material, and other properties of parts. ● Models <ul style="list-style-type: none"> ○ Students will use 4 cylinder parts and one block to create a model of a table. ○ Following this, students will complete a mini-project and create a model of their own choice. ● Building Your Obby <ul style="list-style-type: none"> ○ Students will reflect on what makes a good obstacle course (“obby”), and what they would like to include in their obby. ○ Students will then use main building parts (blocks, cylinders, spheres, and wedges) to create 3 stages of their obby with a variety of colors and materials throughout the obstacle creation process. ○ Students will save, publish and share the link to their game with the instructor. ● Checkpoints <ul style="list-style-type: none"> ○ Students will create active checkpoints for their obby stages so that when a player falls, or their turn ends, they will be able to start from the checkpoint they last reached rather than restarting from the very beginning of the obstacle course each time they play. ○ Students will complete the lesson by adding an additional 2 stages with checkpoints, and ensuring that all of their parts are “anchored” to the workspace in their game.
--	--

Module 3: Scripting in Roblox (1 week)

Using provided code scripts, students will be able to use the Lua programming language to make obstacles disappear, have a platform fade away to nothing, and make a pool of deadly lava. No prior coding experience is necessary for this module.

<p>Objectives / Topics Covered</p>	<ul style="list-style-type: none"> ● What is Scripting? ● Disappearing Platforms ● Fading Platforms ● Deadly Lava
<p>Example Assignments / Labs</p>	<ul style="list-style-type: none"> ● What is Scripting? <ul style="list-style-type: none"> ○ Students will learn the basics of code scripts in Roblox Studio. ○ Students will use provided lines of code to change the color of a block. ○ Then students will practice changing an additional property (Material, Transparency, Size, or Position) of the block. ● Disappearing Platforms <ul style="list-style-type: none"> ○ Students will create a block obstacle that disappears and reappears every three seconds using a provided code script. ○ Students will then modify the platform and change the number of seconds the platform disappears for, reappears, or both.

	<ul style="list-style-type: none"> ● Fading Platforms <ul style="list-style-type: none"> ○ Students will create a block obstacle that slowly fades away to nothing once it is touched using a provided code script. ○ Students will then modify the platform and change the function that controls the fading of the platform as specified above. ● Deadly Lava <ul style="list-style-type: none"> ○ Students will create a block obstacle that functions as a deadly pool of lava using a provided code script. ○ Students will then modify the health property when a player touches the lava. ○ Students may also complete a challenge exercise and make the lava change colors back and forth between red and orange colors.
--	---

Module 4: Customization and Beyond (1 week)

Utilizing the skills and tools from the previous modules, students will channel their creativity to customize their games and make them unique. Students will also learn about the different pathways in the game design industry, reflect on what they have learned in the course, and participate in a discussion of the future of the metaverse.

<p>Objectives / Topics Covered</p>	<ul style="list-style-type: none"> ● Completing Your Obby ● What's Next?
<p>Example Assignments / Labs</p>	<ul style="list-style-type: none"> ● Completing Your Obby <ul style="list-style-type: none"> ○ Students will work on completing their obby games to meet the following requirements: <ul style="list-style-type: none"> ■ At least 20 different elements/stages ■ A spawn point and an appropriate number of checkpoints along the way ■ Use of the 3 pre-written scripts given to you ■ Use at least 3 different colors or materials on the objects ■ A clear goal or purpose to the program ● What's Next? <ul style="list-style-type: none"> ○ Students will learn about various career pathways in the game design industry, learn about a day in the life of a game designer, and view a sample game arts demo reel. ○ Students will then complete the course with a reflection on their Roblox game, the metaverse, and their place within it.