



## VR/AR Building

### Course description

VR/AR Building is a course that introduces students to the basics of building virtual reality worlds using HTML and the A-Frame JavaScript Library. Through this course, students will build their own virtual reality worlds that are compatible with VR devices, including smartphone VR headsets.

### Course objectives

Students write and run virtual reality programs in the browser using the CodeHS editor. They will use Mozilla's A-Frame library to build VR experiences in HTML.

### Prerequisites

None

### Materials Needed

•Pencils •Internet Access •Computer •iPad

### Grading Scale

A+	98-100	C+	82-84
A	93-97	C	77-81
B+	90-92	D+	74-76
B	85-89	D	70-73
		F	Below 70

### Daily Participation

Will be 15% of final grade. If you miss class you can make up points.

### Semester Test Grade

Will count 10% per semester

Q1 grades + Q2 grades= 90% Semester Grade= 10%

Q3 grades + Q4 grades= 90% Semester Grade= 10%

### Course Final

Students will work individually or in a group to develop VR/AR for local museum, classroom, or school. They will be presenting their created VR/AR for feedback and public use.

### Course outline

#### Unit 1:

This unit introduces students to virtual reality and the A-Frame library. Students will create their first virtual reality world!

#### Unit 2:

In this unit, students are introduced to boxes, cones, and cylinders. Students will also learn where to find out more information about the shapes that A-Frame provides.

#### Unit 3:

In this unit, students will learn how to add animations to the objects in their VR worlds. They will learn how to program shapes to move, change color, rotate, and disappear.

#### Unit 4:

In this unit students will learn how to add interactions so that viewers can interact with objects in virtual reality.

#### Unit 5:

In this unit students will learn how to add interactions so that viewers can interact with objects in virtual reality.

#### Unit 6:

This unit discusses next steps students can take to further explore virtual reality development with an A-Frame. Topics include viewing your creation in a VR device, using the A-Frame documentation and inspector to keep learning, as well as links to more tutorials and training.

#### Unit 7:

In this unit, students will combine the skills they've learned to brainstorm and create their own virtual reality final project.

### Course grading

The main forms of assessment for this course are the lesson activities and completion of projects.

### Tests/Quizzes

Will be used to assess student learning after lessons.