

CODING TO CREATE A VIRTUAL REALITY SCENE

Stephanie May

Canfield Local Schools



College of Engineering
and Applied Science
Computer Science

EDUCATIONAL PRODUCT GOALS: Students will learn to code HTML and use the the A-Frame JavaScript Library. Students will practice using 3d Coordinate Systems. Students will create and improve a VR world using input from users.

STANDARDS (OHIO COMPUTER SCIENCE)

Program Development

ATP.PD.7.a Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

ATP.PD.7.b Test, trace and debug to refine code.

ATP.PD.7.c Identify procedures that utilize parameters.

OVERVIEW OF EDUCATIONAL PRODUCT

Students will explore seven units as they they create code to build virtual reality worlds. This curriculum unit will give students practice using 3D Coordinate Systems and programming as they learn shapes, and animate those shapes, using HTML as they create and personalize their own virtual reality worlds.



EDUCATIONAL PRODUCT DESCRIPTION

Getting Started

Introduction to the A Frame library. **Advanced Shapes**
Introduction to boxes, cones, and cylinders.

Animation

Add animations to the objects in their VR worlds.
Program shapes to move, change color, rotate, and disappear.

Interaction

Add interactions so that viewers can interact with objects in virtual reality.

360° Images

Work with 360° images and videos in their VR worlds.
Add an image from a 360° camera, as well as an image or video sourced online. Practice citing sources when using images captured by others.

Next Steps

Using a VR device, A-Frame documentation and inspector.

Final Project

Students combine the skills they've learned to brainstorm and create their own virtual reality final project to be showcased during STEM night.

BACKGROUND KNOWLEDGE

Knowledge of 3D coordinate systems would be helpful but this is an introductory unit and no prior knowledge is needed.

ASSESSMENT

Formative: Complete online activities, lesson completion of new coding skills.

Summative: A final project will be assessed using a rubric.

REFERENCES: THIS PROJECT IS CREDITED TO CODEHS.

<https://codehs.com/uploads/ee328a53778f208ffe4ca00e8aa1ecc>

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