Maze & Robot Creator

Grades 4-9

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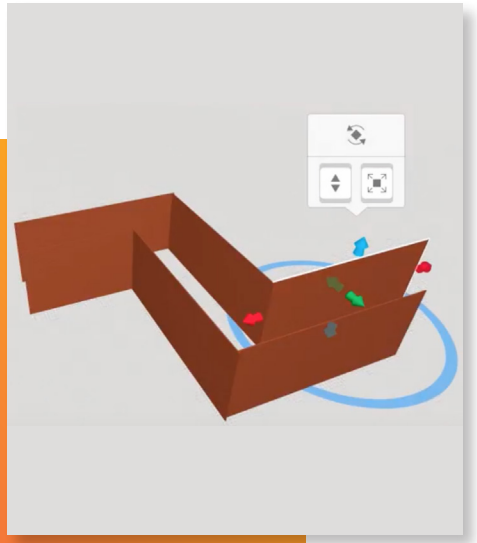
*Requires accounts with CoSpaces Edu Pro and Tinkercad



Difficulty 3 | 4-45 minutes | 1 to 1

Tags: Math, Measurement, X/Y axis, CoSpaces Edu, Tinkercad

App/Tech Tools	CoSpaces Edu Pro accounts, Tinkercad account, MERGE Cube, MERGE Headset (optional), device (phone/tablet)
Materials	

Learning Objectives

- Use 3D design programs to create, manipulate and measure 3D objects.
- Code a 3D design in a virtual space to move in specified directions using an x,y,z axis.
- Identify and use appropriate tools, technologies, and materials for production.
- Learn visual programing languages.
- Create a 3D model in the CAD program Tinkercad.

Activity

1. In this lesson, students will be building their robot in the 3D design program using their Tinkercad account. This video provides a step-by-step tutorial for setting up and managing student accounts Tinkercad. (Tinkercad Sign up) For students who are using Tinkercad for the first time, they can learn to build their robot by following the videos here. (Building a Robot Part 1-4)

2. For students in grade 8-9 or who are more comfortable with Tinkercad, they can access a more advanced robot lesson where they build the robot through existing shapes by clicking "Copy and Tinker" here (Robot Lesson)

3. Once students' robots are complete, they will bring them into CoSpaces and code them to move through the maze.

Tinkercad: (Maze Part 5) Video 1

CoSpaces: (Maze Part 6) Video 2

CoSpaces: (Maze Part 7) Video 3

MERGE Cube: (Maze Part 8) Video 4

Suggested Questions

- What happens if we start to create a maze that does not have 90 degree right angles?
- Could we code our robot to speak each time it turns?
- Could we have our robot change colors each time it moves?
- Do you think there is a way to automate the robot's movements?
- Can you use the "hole" function in Tinkercad to bring in the robots head and body separately? Then code the head to turn?
- Can you could get a partner's robot into your space?

VR Experiences worth checking out