Code.org Maze
Plugged

OVERVIEW

Students will build on their understanding of algorithms learned in Pixelbots to solve problems with different commands in the Code.org environment.

OBJECTIVES

- Students will decompose problems with new elements
- Students will learn to use a block-based language

AGENDA

Length: 45 minutes

1. Solving problems with new code elements
2. Introduce code.org maze
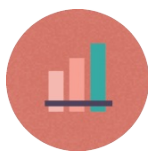3. Code.org Maze: Deliberate practice

VOCAB

Programming Language - A set of programming elements used to communicate to a computer.

MATERIALS

1. Scratch paper grids

2. Small pixel bot cutout for each student
3. Magnetic pixel bot
4. Scratch paper grids
5. Pencils
6. Whiteboard

CODE ELEMENT CHANGE-UP

Length: 15 minutes

Students are given different code elements to solve similar pixel bots problems.

Prep: Draw a medium difficulty coding challenge on the board.

Teacher Actions	Student Actions
1 Draw the normal icon elements students are accustomed to and ask students to use them to solve the puzzle.	**1** Students use the elements to develop a solution.
2 Discuss student solutions.	**2** Students raise their hands to offer solutions.
3 Introduce students to a different set of elements (degree turns – see the arrows below) by drawing them on the board. What do students think they mean? How much should they turn right? How much should they turn left? How far should they move forward? • ↑ - move one block forward • - turn right 90 degrees	**3** Students raise their hands to discuss the new elements.

- □ - turn left 90 degrees

4	Students solve the puzzle using the new code elements.	**4**	Students solve the problem using the new elements.
5	Discuss: What was the difference between the elements? How do the elements you have affect your solution?	**5**	Students raise their hand to discuss the difference when using new elements.

INTRO TO CODE.ORG MAZE

Length: 5 minutes

Introduce students to code.org by projecting the teacher screen and solving a maze puzzle as a class.

Prep:

1. Set up projector
2. Navigate to https://studio.code.org/s/course2/stage/3/puzzle/1.

Teacher Actions	Student Actions

1 Point out that code.org uses a different programming language.
 	
  1. Ask students to look at the available code elements (on the left side of the editor) and talk about what is different from pixelbots.io
  2. A programming language is how a person can communicate with a computer. There are many programming languages.
  3. Pixel bots used an icon language. Code.org uses a block based language.
	1 Students offer answers about the differences between the elements in pixelbots.io and code.org

2 students the projected screen and show them how to use the code.org interface:
 	
  • How to drag and drop blocks into the code editor
  • How to run the code
  • How to reset after a run
	2 Students are off the computer and facing the teacher

3 As a class solve the first puzzle.	**3** Students raise their hands to offer answers about what blocks to add to the code.

CODE.ORG MAZE: WRITE CODE PRACTICE

Length: 30 minutes

Students do the rest of the Code.org maze puzzles on their own.

Teacher Actions	Student Actions
1 Explain the exercise and facilitate students navigating their browsers to the correct place. 1. Students navigate to studio.code.org 2. Click on course 2 3. Click on the first Stage 3: Maze: Sequence	**1** Students open their web browsers and navigate to the challenges 1. Students navigate to studio.code.org 2. Click on course 2 3. Click on the first Stage 3: Maze: Sequence
2 Tell students to work through as many of the exercises as they can.	**2** Students work on completing the mazes.
3 When students get stuck, use the Writing, Reading, and Debugging protocols to support student learning. Ask students to imagine being on the Coder team from the group activities. They should try to play the roles of the writer and navigator. Then, ask students to imagine being a Bot to understand how the computer is reading the code.	