THE CHALLENGE:

Design a maze that you will help someone navigate through while blindfolded.

RECOMMENDED AGE

8 and up

TIME NEEDED

30 mins - 1 hour

TOOLS & MATERIALS

- Maze template or blanks sheets of paper
- Pencil
- Options to create maze layout: chalk, rope or yarn, tape, paper
- Blindfold

SECRET CODE KNOWLEDGE

To redeem your secret code, or to sign up for the Summer Reading Challenge, visit Corona.Bookpoints.org

GETTING STARTED - INSTRUCTIONS

STEP 1: ALGORITHM DRAWING

Algorithms are a list of commands (instructions) that you can follow to finish a task. *Hmmm kind of sounds like the steps in our Maker activities.*

Lets try something out! Grab a blank sheet of paper and and pencil. Follow the algorithm below, step by step.
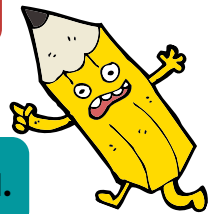
> **When drawing starts...**
>
> **Draw an oval**
>
> **Draw pointy shapes at the top of the oval.**
>
> **Draw three lines going diagonally from left to right inside the oval.**
>
> **Draw three lines going diagonally from right to left inside the oval.**

What did you draw? *Hint: It is supposed to be a fruit.*

Algorithms can also be written for computers. They are called **programs**. As you can see, the algorithm was not perfect and needs more details. Computer scientists **debug** by finding and fixing bugs (problems) in the program.

STEP 2: DESIGN A MAZE

You are are going to design a maze that you will then program someone to navigate through while blindfolded.

Use the maze template to create a maze with obstacles. Think about the location and size of your space.

MAKER EXCHANGE
AT CORONA PUBLIC LIBRARY

activity
CODE A MAZE

QUESTIONS TO ??? CONSIDER

- How are algorithms used in our lives?
- What do I do if a find a bug in my program?

KEY TERMS

- Algorithm
- Commands
- Program
- Debug

SIMPLIFY

Have someone complete the maze on paper.

EXTRA CHALLENGE

Program your robots to pick up items as they make their way through the maze.

RELATED RESOURCES

- Lesson Video
  https://bit.ly/3ezXSdf
- Angry Birds Maze Coding Game
  https://studio.code.org/hoc/1

INSTRUCTIONS CONTINUED...

STEP 3: CONSTRUCT THE MAZE

Create the maze you designed in real life. You can create a maze outside using chalk. If you are indoors you can use creative ways to make lines and set up boundaries and obstacles using yarn rope, tape, paper or pillows.
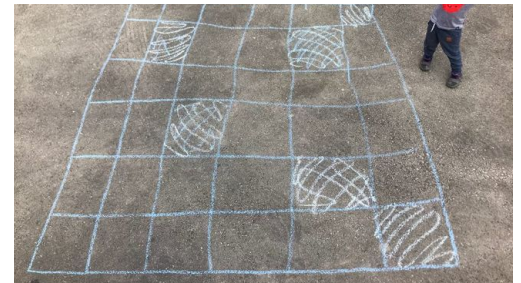
STEP 4: CODE YOUR MAZE

Once the maze is complete, walk through it and create a program that would help the robot or in this case, blindfolded person, navigate through from the entrance to the exit without stepping on obstacles. Debug if necessary. You can write the program on a blank sheet of paper or on the back of the maze template.
Example: Move 2 steps forward, turn left, etc.

STEP 5: RUNNING THE CODE

Start the person at the entrance of the maze. The programmer (you) will then navigate the robot (blindfolded person) through the maze by reading out the code. You should notice that they will require very specific instructions just like computers do.

Try this if outside: If programmed correctly, the programmer is able to blast the robot with water.

CODE A MAZE

DESIGN YOUR MAZE USING THIS TEMPLATE.

Remember to mark the entrance and exit of the maze and include obstacles. Write your program on the back or a blank sheet of paper.

Entrance	Exit	Obstacle
START	FINISH	X

Program Command Examples

Move Forward   Turn Left
Move Backward   Turn Right