



## Connecting Math to Our Lives and Communities

### Mazes, Labyrinths, and Sona Drawings

#### Introduction

A maze is a path or collection of paths, typically from an entrance to a goal. Mazes come in a variety of shapes and sizes. You may have walked through corn mazes or worked your way through a maze using a pencil and paper. If you prefer to explore mazes online head to our CMTOLC website and check under the Mazes and Labyrinths module for some online maze games!

A labyrinth is not quite a maze. It has only one path to the center and back out. It has no blind alleys or dead ends that we see in mazes. The path twists and turns back on itself many times before finally reaching the center. Once at the center, there is only one way back out. Labyrinths can be found in many cultures and legends around the world. The Tohono O’odham people from the Mexican state of Sonora and present-day Arizona use a labyrinth like seed pattern in their artwork to represent their people. They refer to this as the “Man in The Maze” and it represents the difficult journey toward finding the deeper meaning to life through the twists and turns that we experience.



Figure 1: The Man in The Maze drawing

The Chokwe (pronounced “chock way”) people live in southwestern Africa, mainly in northeast Angola. The Chokwe use art to assist with storytelling. They have an ancient tradition of making sand drawings, known in their language as Lusona (plural: Sona), to illustrate their stories. The Sona illustrates proverbs, fables, games, riddles, and stories about animals.



Figure 2: Sona drawing completed in sand

#### Math Connections

1. Measurements
2. Patterns
3. Logical Reasoning
4. Geometry and Angles

#### Materials

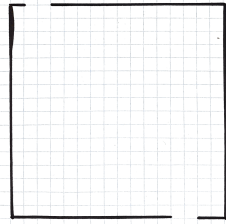
1. Graph paper

2. Pencil
3. Ruler

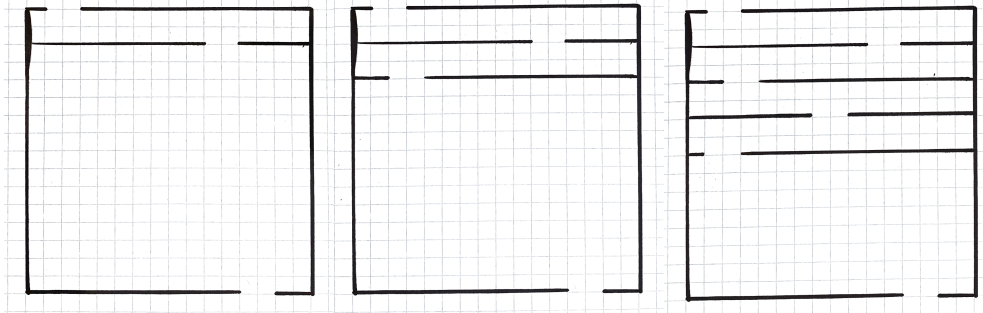
### Activity

#### Drawing a Maze

1. Using your graph paper and ruler draw a 16 square by 16 square, leave two squares at the top for an entrance and two squares at the bottom for an exit to your maze.



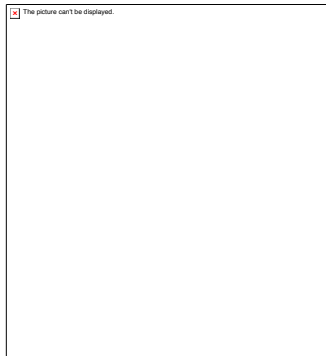
2. Next, to create the “walls” of your maze draw two square wide parallel lines leaving one two square gap in each line. Continue these parallel lines to the bottom of your maze.

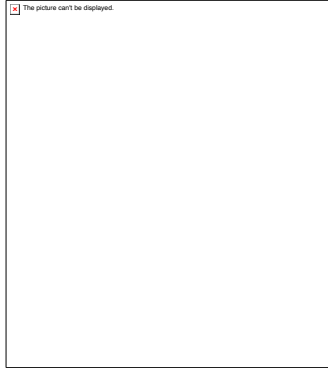


3. To finish your maze, add arrows to show the entrance and exit points!



4. Give your maze to friends or have fun tracing the path out yourself!





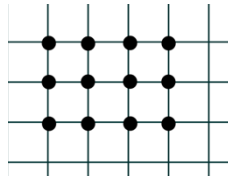
### Drawing a Labyrinth

Every labyrinth starts out the same with a cross and dots in the corners called a seed pattern! Today, we will use a simple seed pattern to draw a labyrinth. There are different variations of labyrinth seed patterns, we will focus on the 3-circuit seed pattern.

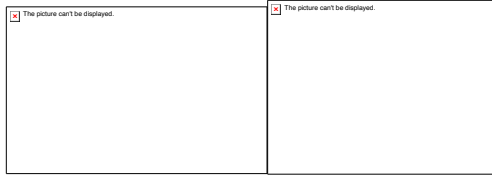


### Making Sona Drawings

1. You can make your drawings using graph paper, or chalk from your kit or try this in sand at a park or beach!
2. If you are using graph paper, make a 4 dot by 3 dot rectangle by marking the intersections of the lines on the paper with pencil dots.



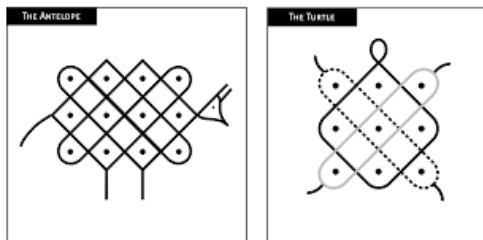
3. If you are outside, use your index finger and your ring finger to mark the points. Start on the right side and work right to left, keeping your ring finger in the last hole you made make a 4x3 dot rectangle.



4. Now that we have our board, we can start making our drawings. You can start anywhere on the board; you start between two points and go at a 45-degree angle between the dots until you hit the edge of the board where you will make a 90 degree turn back down like the following:



5. There are some rules though. You can cross an existing line, but you cannot retrace an existing line, you must start from a new point once you have nowhere else to go.
6. Try to use different colours or lines when you must start a new drawing!



**Send us a photo of your mazes, labyrinths, and Sona drawings at Connecting Math To Our Lives and Communities email ([cmtolcstfx@gmail.ca](mailto:cmtolcstfx@gmail.ca))! ☺**