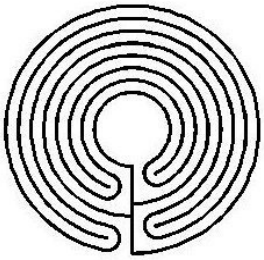
Making a Spiral Labyrinth

By Robert Ferré

I developed the spiral labyrinth specifically for use with tape machines. Since the machines allow one to apply tape to the floor while walking upright (not crawling on hands and knees), it seems most efficient to make a spiral, as one can keep walking, stopping only to change rolls of masking tape.

There is a close relationship between the spiral labyrinth and the classical labyrinth (left). Note that there is one more path on the right side than the left side, and that the turns line up symmetrically across from each other. There is no center, however, as the path simply ends in the middle. Because it gets crowded when there are a number of people walking the labyrinth, one option is to make the pattern circular, so as to have a larger center and to make it symmetrical at the bottom.



A circular classical labyrinth is made by moving the entire left side downward by one path width. This can be seen in the horizontal line (arm of the cross in the center of the pattern), which is now offset. As a result, the bottom is even. However, the symmetry of the turns is lost, as they are no long across from each other. The left-side turns are one path width lower than the right-side turns, because that half of the pattern was lowered. The benefit for doing all of this is the ability to make the center circular, which creates more space to hold people.

The spiral labyrinth looks like a circular version, but now the right side has been lowered by one path width (from the circular version). The center is distinctive. The turns are once again symmetrical, side by side. And at the bottom, the right side has one more path. The last two features, symmetrical turns and extra right-side path are like the original classical pattern. Now, however, the center is circular and can be made of any size. It can be made large to hold groups. The only restriction is how large the floor space is, and how much tape is available.

During my labyrinth-making master classes, I show how to make a tape machine from a simple box-packaging tape gun. These instructions are available on my website (see www.labyrinth-enterprises.com/tapemachine.html). Beginning in 2009, it is also possible to buy tape machines directly from Labyrinth Enterprises. At the 2007 Midwest Labyrinth Gathering in Indiana, tape machines were used to make a temporary Chartres labyrinth.(photo). During my trainings, I use a single tape machine to make a 15-foot-wide spiral labyrinth (one foot wide paths) in under ten minutes (usually around six or seven minutes). This allows the facilitator to show up and quickly make a temporary on-site labyrinth for a very modest cost, rather than bringing a bulky labyrinth. Plus, they can leave it behind when the program is over.

The next page has instructions on how to make a spiral labyrinth. To calculate how much tape you will need, multiply the anticipated diameter by 13. So, for my 15-foot-wide pattern, 15 x 13 = 195 ft. One roll of masking tape is around 165 ft. So I use one roll plus part of a second roll. Total cost: under ten dollars.

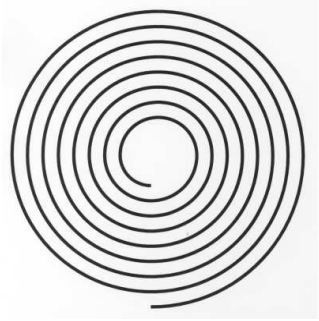


Fig. 1

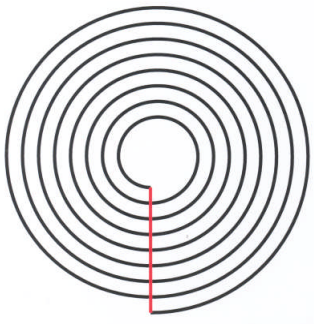


Fig. 2

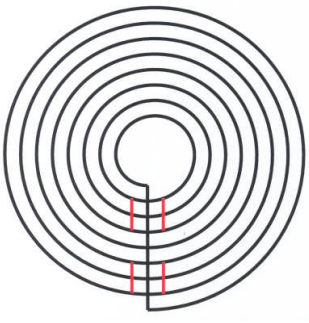


Fig. 3

Fig. 4

Start by making an eight-ring clockwise spiral. Begin just a little to the left of the intended vertical axis, as the entrance will be centered on that axis. Go around as if making a circle, but keep expanding it so that rather than ending where you started, which would make a circle, you end up below that point, allowing you to continue making the spiral (See Appendix A). How far you go below the starting point will determine your path width. I suppose you could measure it all, but I just eyeball it. Once the path width is determined, it is not too difficult to keep it fairly consistent and uniform.

After the first ring of the spiral, keep going around and around until there are eight rings, ending up at the bottom, directly below your starting point. Notice the classical pattern on the far right (Figure 4). We see that the outer circle connects to the bottom of the cross, which in turn connects to the left side of the center circle. We do exactly the same thing with the spiral, connecting the two ends of our spiral with a vertical line (shown in red in Figure 2).

The turns in the spiral labyrinth are in exactly the same relative place as for the classical labyrinth. The four red lines in Figure 3 show where the turns are located. They are parallel to the vertical line we just drew, one path width away. It is easiest to see on the lower left, where the turn connects the bottom three circles. The turn on the right side is directly across from it. Then, going upward, skip two paths, and make two more similar lines.

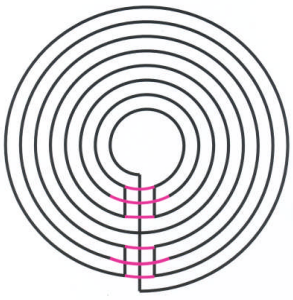


Fig. 5

Fig. 6

Fig. 7

Fig. 8

Now, all that remains is to remove a little tape to open up the paths and the turns. Figure 5 shows in magenta exactly what needs to be removed. The shorter lines connect the top and bottom of the turn lines. The middle lines are longer, as they extend one path-width further in order to make space for the path to turn 180 degrees. The end points of the longer magenta lines represent the ends of the two lines that make the pattern (notice Figure 4). When the tape is removed, voila, you have a spiral labyrinth (Figure 6). If you want to be a little more creative, you can makes the turns circular, as shown in Figure 7, with the end result shown in Figure 8. Happy labyrinth making. If you have any questions, contact me by email: robert@labyrinth-enterprises.com. Feel free to send me photos or accounts of making your spiral labyrinth.

Drawing of the spiral labyrinth. Enlarge this to carry with you when making one.

Making the center look more symmetrical.

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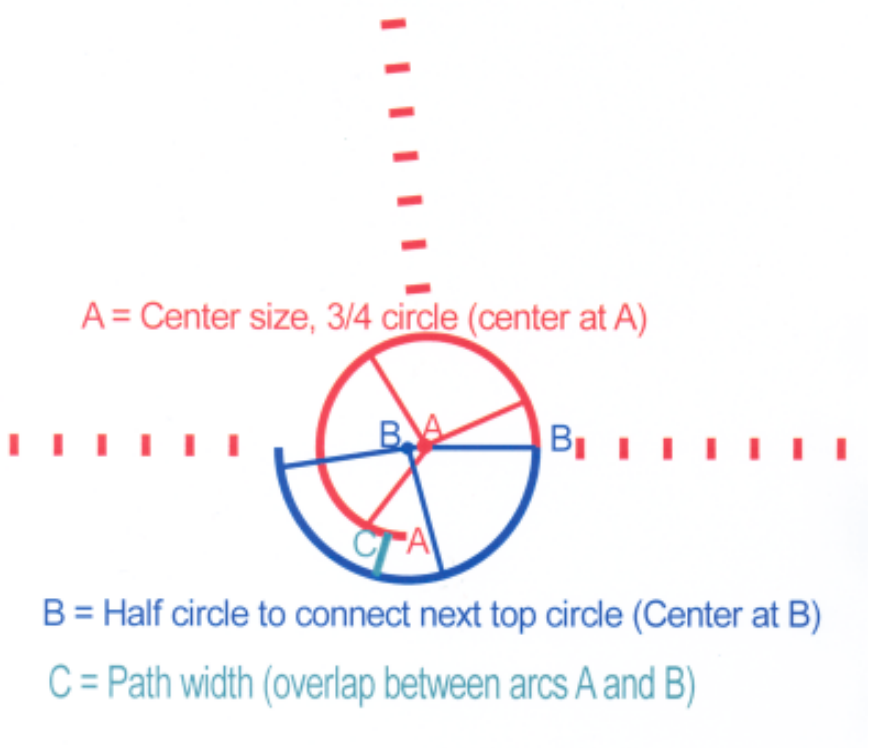
Appendix A

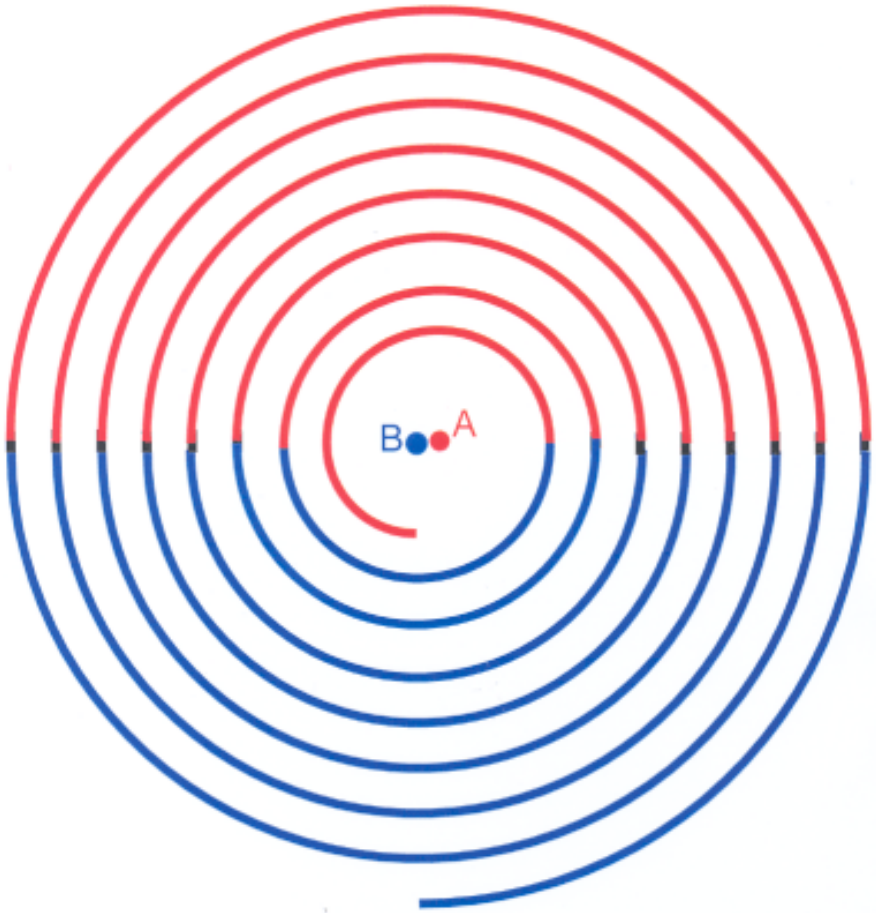
The most important step is the first ring of the spiral. So here is a little more instruction.



Remember that the top of the spiral labyrinth is made of eight concentric half-circles, just like the classical labyrinth. You can mark off the eight top circles on the vertical and horizontal axes if you want to determine precisely the size of your spiral labyrinth. You will have seven paths on either side of your center circle; so you can compute the size of the labyrinth by multiplying the spacing of your paths by 14 and then adding the size of the center. You can begin with a path width of two feet, for example, and a center six feet in diameter. So, two feet times 14 paths equal 28 feet, plus six feet for the center gives a labyrinth with a diameter of 34 feet. Or, you can start with the size you want, say, 50 feet. If you want your center to be eight feet, that leaves 42 feet. Divide 42 by 14 to get the path spacing, in this case, it comes out even at three feet.

Start drawing the spiral at the bottom, just a little to the left of your intended vertical axis, shown above as the bottom red “A”. Make 3/4 of a circle, ending at point B. The next arc will go from there to one path width beyond your first loop. That will give an arc shown above in blue. It actually has a different center than does the first, 3/4 circle. So the centers are shown as red A and blue B, which are separated by half the path spacing.

The measurement above marked “C” represents the amount of overlap in drawing the spiral. The overlap determines the width of your path and therefore the size of your labyrinth. Both the paths and the center can be whatever size you choose to assign them. Normally, the value for C stays the same, making the paths the same width. When eyeballiing it, there may be some variation.



I have chosen to draw the spiral as two sets of half circles, since I am doing it on the computer. They have the centers shown as A and B. A true spiral, however, opens out equally. This can be done by having a cylinder in the center, the circumference of which is the desired path spacing. Roll up the measuring rope onto the cylinder (it could be a 5-gallon bucket, for example, or something smaller than that). Then, unreel the guide rope to determine the starting point of the first inner loop, shown in the earlier diagram as "A". Continue unreeling the guide rope. After one loop, you will have unreeled one circumference of the cylinder, which will be your overlap (shown earlier as "C"), and thus your path spacing. Each subsequent loop does the same thing, giving a spiral Archemedes would be proud of.

Remember this formula: D x Pi = C. "D" stands for the diameter of the circle, which is used to calculate the circumference ("C"). To do this, you multiply by Pi, for which you can use 3.14. So, Diameter x 3.14 = Circumference. Suppose you have a bucket that is one foot across (diameter). That is 12 inches. Therefore, 12 inches times 3.14 equals 37.68 inches, or a little more than a yard. That will be your path spacing, which will give you a very large labyrinth (44 feet plus your center). On the other hand, if you know you want your paths to be, say, 18 inches wide, then you must solve for diameter. D = C/Pi. To get the diameter, you simply divide the desired path width (circumference) by 3.14. So in this case, 18 inches divided by 3.14 equals 5.73, which is essentially five and 3/4 inches. That is the diameter your cylinder needs to be.

You can still use your tape machine. In fact, you can tie the end of the rope to the tape machine and just keep it taut as the rope unwinds. Press plenty hard on the machine to make the smaller circles. Enjoy!