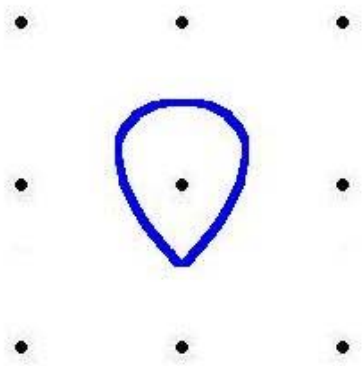
Kolam Figures

In Tamil Nadu, a state in southern India, it is an old tradition to decorate the entrance to the home with a geometric figure called "kolam". Kolam figures are hightly symmetric and regular, and precise procedures for drawing them are passed down from mother to daughter. Of course, a precise procedure for making a pattern is an algorithm! Recently computer scientists in Madras have found a new application for kolams-- the algorithms used to draw kolams are also useful for creating languages in which computers can draw picutres.

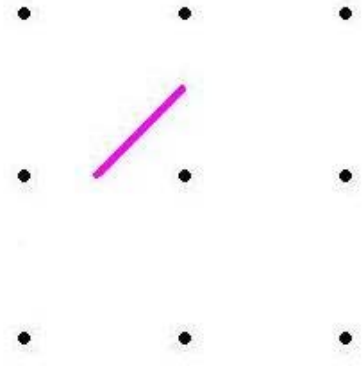
The kolam drawings are typically done using rice powder or chalk. The first step in drawing a kolam figure is to lay out a grid of dots. Then there are a few basic steps which can be put together in different orders to make different patterns.

Here are three of the basic steps:

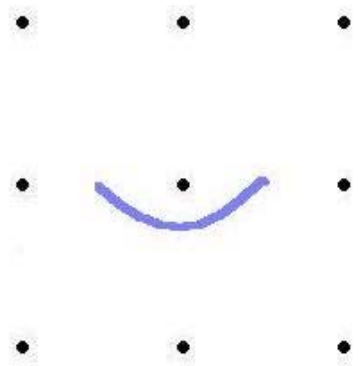
1. Make a loop:



2. Go straight:

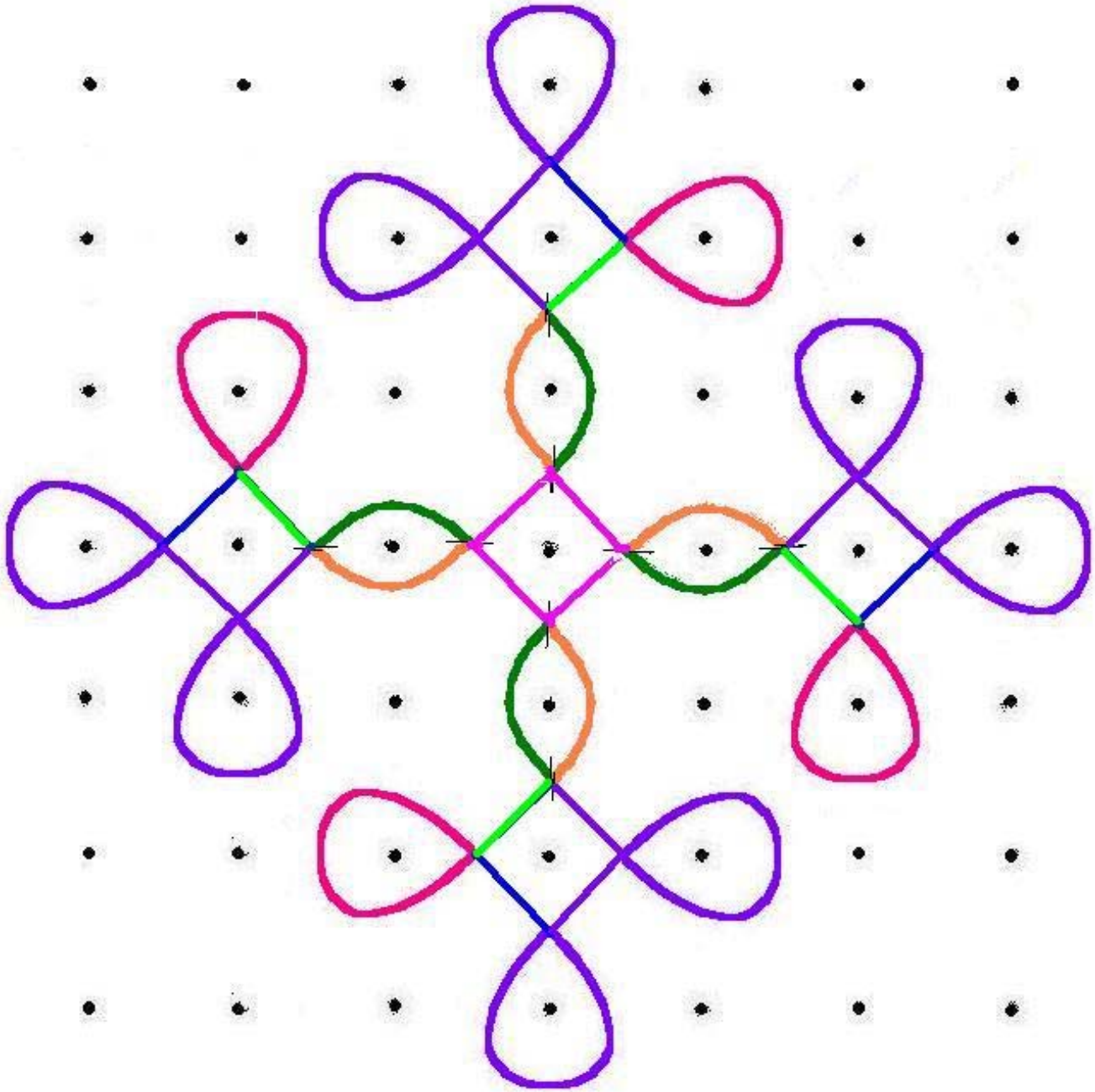


3. Make a half loop:



The Algorithm for the Anklets of Krishna

1. Make a clockwise loop. (shown in red)
2. Go straight. (shown in blue)
3. Repeat 1 and 2 two more times. (Shown in purple)
4. Make a half loop. (Shown in green)
5. Go straight. (Shown in magenta)
6. Make a half loop. (shown in orange)
7. Go straight. (shown in light green)

Repeat steps 1-7 until you get back to where you started.

It's easiest if you start your first loop horizontally around the dot which is one down and one to the right from the top middle.