Algorithms, Braids, and Kolam Figures
Algorithms

An algorithm is a set of steps which you can repeat to get a predictable result. Computer programs are based on algorithms because following instructions exactly is what computers do best. The algorithms most familiar to you are probably our standard addition, subtraction, and multiplication algorithms.

When you write
\[
\begin{array}{c}
11 \\
456 \\
+284 \\
740 \\
\hline
61 \\
723 \\
-376 \\
347 \\
\hline
234 \\
234 \\
\hline
740 \\
468 \\
\hline
347 \\
4914 \\
\end{array}
\]

you are following an algorithm.

Oddly enough, the word "algorithm" actually comes from someone's name! "Algorithm" is a westernization of Al-Khwarizmi, the name of a Muslim scholar in 8th century Baghdad. He wrote the first book on algebra: *Hisab al-jabr w'al muqabala*. The word "algebra" comes from the second word in the title of this book.
The Braid Algorithms

You can make these braids by repeating the basic steps in the algorithm in order over and over again. Stop when your braid is the desired length.
Flat Braid of Three Strands

Start

1. Cross left over middle.

2. Cross right over middle.
Flat Braid of Four Strands

1. Cross the leftmost over left middle and right middle over rightmost.

2. Cross right middle over left middle.
Another Flat Braid of Four Strands

1. Cross leftmost over the next two.

2. Cross rightmost over right middle.
Round Braid of Four Strands

1. Cross leftmost over left middle two.
2. Cross left middle over right middle.
3. Cross rightmost over middle two.
4. Cross right middle over left middle.