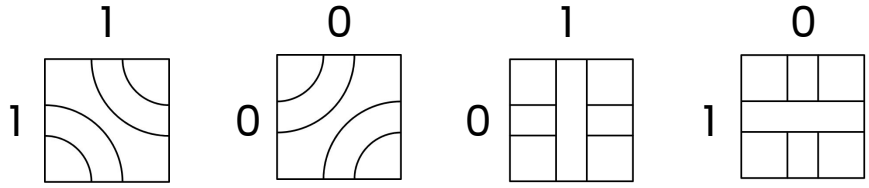
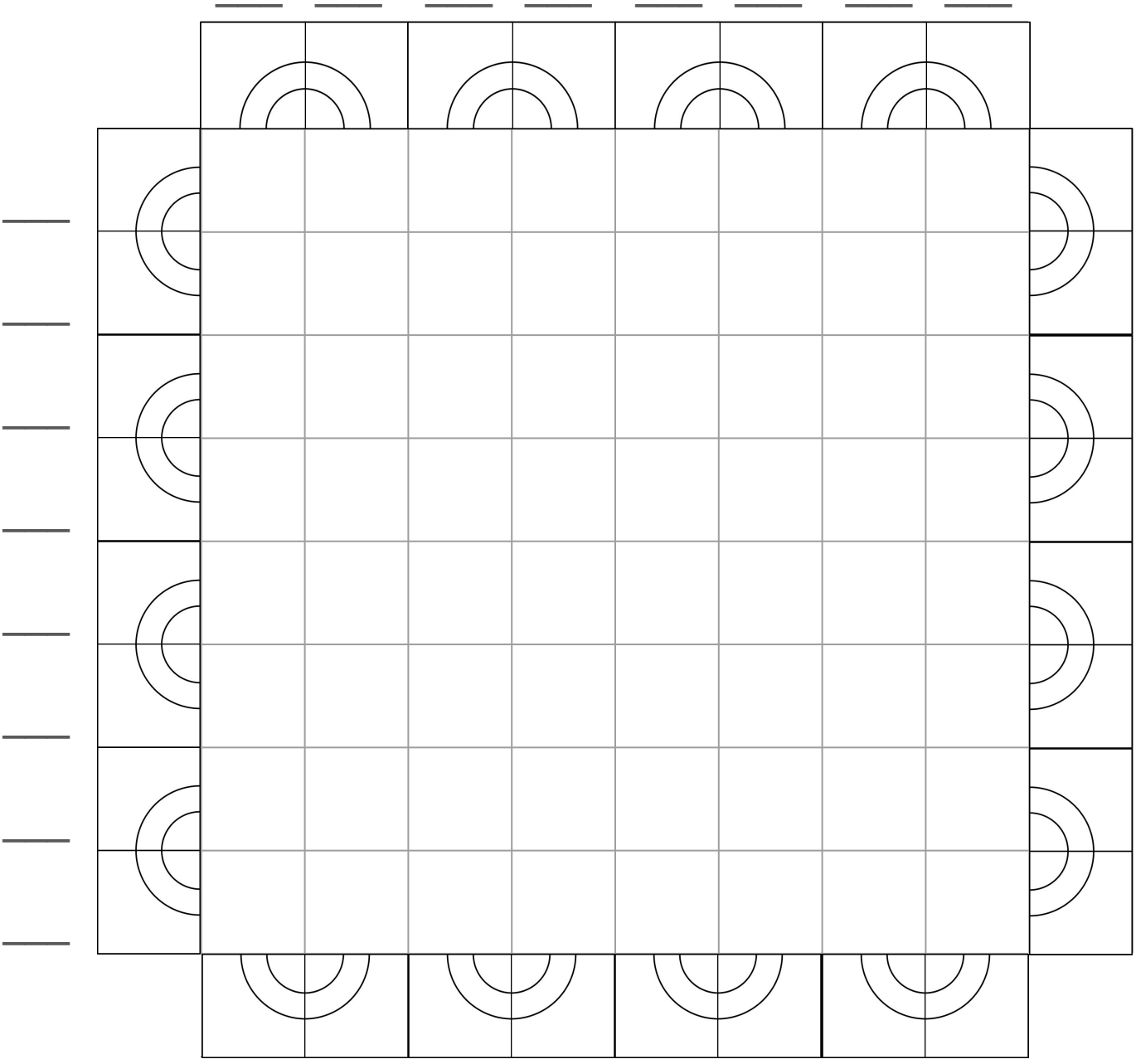
Knot Tiles

Instructions - Randomly label each row and column with a 0 or 1. Use these numbers to determine which of the four knot tiles to put in the corresponding square. Complete by coloring each path with a different color.

Key





Associated Explorations

Binary numbers - Binary numbers form the basis of computing systems. Binary numbers contain only the digits 0 or 1, or bits, where each bit represents a power of two. How do you convert from decimal to binary?

Random number generators - How do computers create random numbers?

Probability - What is the likelihood of creating exactly 1, 2, 3, etc loops?

Statistics - What is the average number of loops created? What is the average length of a loop?

Knot Theory - Knot theory is the study of closed curves in three dimensions, and their possible deformations without one part cutting through another. How does this activity relate to knot theory?

Loops Puzzle - https://mathequalslove.net/loops-puzzle/

Truchet Tiles - https://en.wikipedia.org/wiki/Truchet_tiles

Hitomezashi stitching - https://www.youtube.com/watch?v=JbfhzlMk2eY

https://arbitrarilyclosecom.wordpress.com/2020/03/29/mathartchallenge-day-14-hitomezashi-stitching-suggested-by-katherine-seaton/