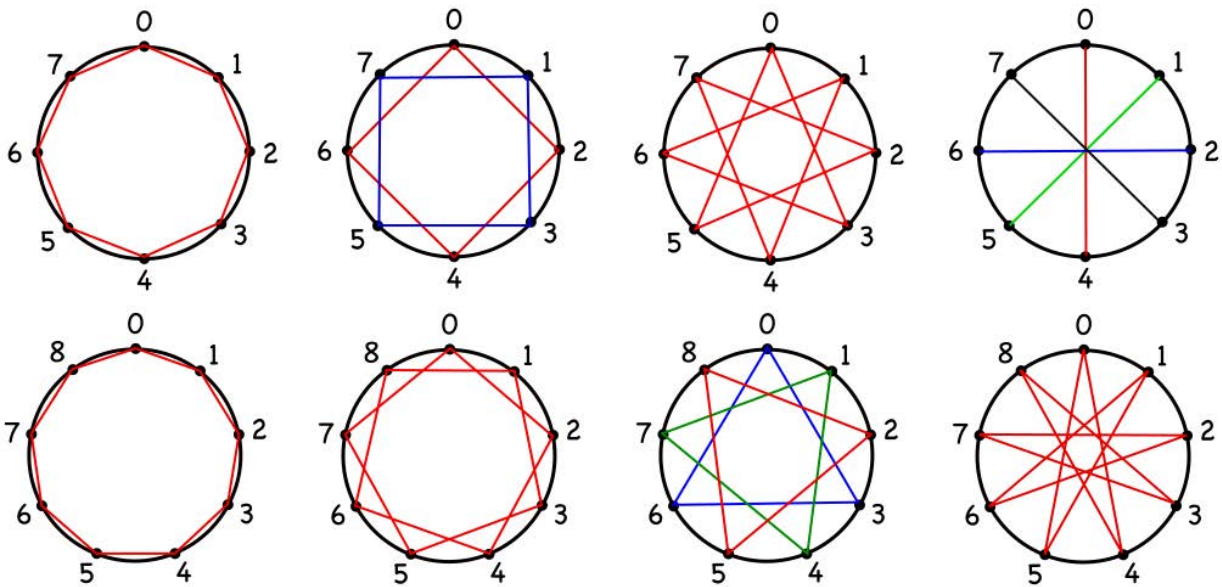


Puzzle of the Week

Stars and Loops Inside Circles

Place some pins evenly spaced around a circle. Picture below are circles with 8 and 9 pins. Make a star by setting a skip amount and attaching one color of string from pin to pin using that skip amount. For example, the third picture of the first row skips by 3 each time, and connects 0 - 3 - 6 - 1 - 4 - 7 - 2 - 5 - 0. In that example, one loop of string connects all the numbers. In other examples, several loops of string were needed to involve all the numbers.

THE CHALLENGE: Suppose you have 12 pins evenly spaced around a circle. For each skip amount, find how many loops of string you will need and how many numbers will be in each loop of string. What do you notice about the loop lengths?



EXPLORATION: Investigate what happens for other numbers of pins. Can you predict what will happen with the loop lengths and number of loops for a given number of pins and skip amount?