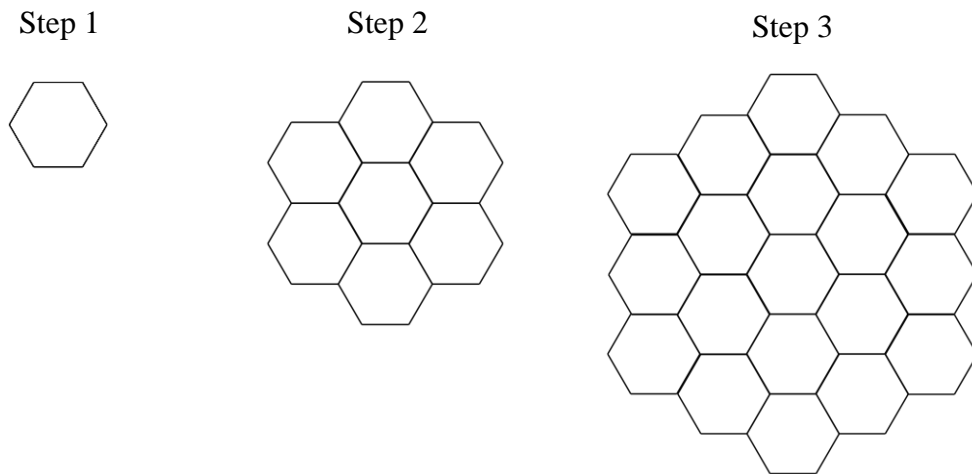Hexagon Tiling Problem

Your task is to generate a formula that will determine the total number of hexagons necessary to build the nth step in the following pattern.

Step 1   Step 2   Step 3

Be prepared to justify each aspect of your formula with respect to the structure of the geometric figures of the pattern shown. This problem is worth a total of 3 puzzle pieces. You will earn 1 puzzle piece for a correct formula and 2 pieces for justifying the formula with respect to the figures.

When you have solved this problem, go to Room 211 of Stanley Hall to present your solution to the Master Teacher.