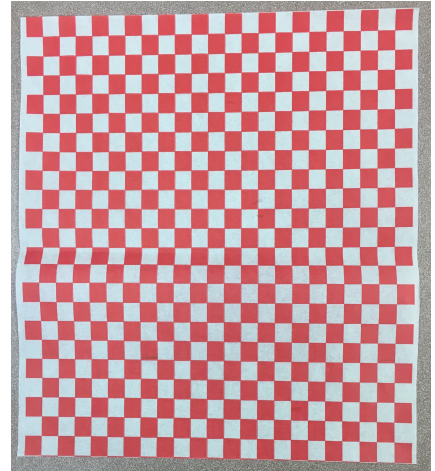


# Odd Square Patterns

What mathematical patterns can be found in an ordinary checkerboard pattern?

While eating lunch in a restaurant, Sean's food was served in a basket with a square paper liner composed of smaller squares. As seen in the picture below, the liner was such that all four corners were the same color and squares alternated colors, red and white, horizontally as well as vertically.



1. Sean wondered how many individual squares there were of each color. Think of different ways you could help Sean determine these amounts.
2. In any sized square, if the colors alternate horizontally and vertically, will the four corners be the same color?
3. How can Sean find the number of red squares in any sized square liner, where the colors of squares alternate and all four corners are red?

From: Olson, J., Olson, M., Slovin, H., Venenciano, L., & Zenigami, F. (2015). *A modeling approach to algebra, second edition* (p. 128). Honolulu, HI: University of Hawai'i at Mānoa, Curriculum Research & Development Group.