962-T1-201 **Maureen T Carroll*** (carrollm1@uofs.edu), Maureen T. Carroll, Department of Mathematics, University of Scranton, Scranton, PA 18510, and **Steven T Dougherty** (doughertys1@uofs.edu), Steven T. Dougherty, Department of Mathematics, University of Scranton, Scranton, PA 18510. *Tic-Tac-Toe on a Finite Plane.* Preliminary report.

Everyone knows how to play tic-tac-toe. On an $n \times n$ board, if a player is able to place their marks "n in a row" either horizontally, vertically, or diagonally then they have won the game. What if we keep the rules of the game the same but increase the number of possible lines to include some that would not fit our standard description of "in a row"? We have done this in a systematic way by including only those lines prescribed by a finite affine plane. Voilà! The game which grew tiresome for us as children is transformed into an interesting, geometrically motivated game. We discuss Latin squares and affine planes and the relationship between them in order to describe how the game is played on an affine plane. We also discuss projective planes, showing them as a natural extension of affine planes. Sample tic-tac-toe games on these finite planes are given and the existence of winning and drawing strategies for both players is discussed. (Received August 27, 2000)