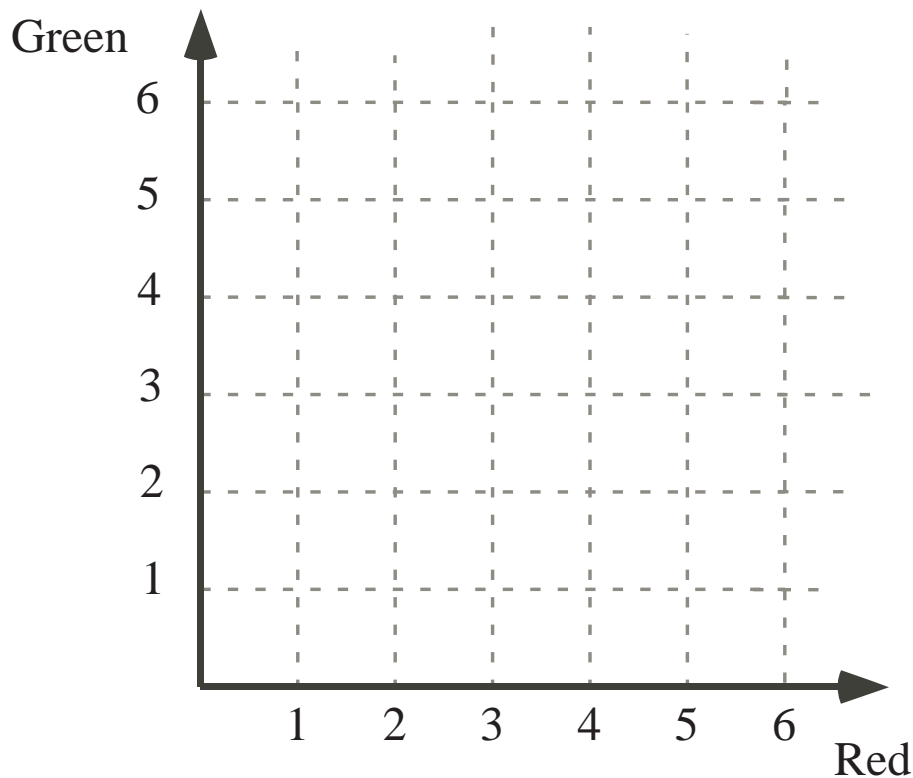


**Problem**

PLOTTING THREE IN A ROW! (a game for pairs of students)



Use two pairs of dice, one pair of one colour (say red), and one pair of another colour (say, green). Decide who will play first. The chosen player rolls all four dice and chooses one red value (for the horizontal axis on the  $6 \times 6$  grid below), and one green value (for the vertical axis), and then plots the point (red number, green number) on the grid. The second player then rolls all four dice, chooses a red number and a green number, and plots the point on the grid, using a different colour pen. The goal of the game is to get 3 adjacent points in a row, in any direction. (horizontally, vertically, or diagonally).



*Extension:*

If Chris goes first, and rolls the following three sets of dice in her first three turns, can she choose ordered pairs so as to win? Explain.

	Red Dice	Green Dice
Roll 1:		
Roll 2:		
Roll 3:		

**Hints**

**Hint 1** - If you rolled 1 and 4 with the red dice and 5 and 3 with the green dice, what would be your four possible choices of points?

*Note to Teacher:* A template of six grids is supplied on the following page for use if you wish to have the students play multiple games.

**Solution**

*Suggestion:* Once a few games have been played, discuss with students the best strategies for winning.

*Extension:*

Chris can win if she chooses  $(2, 1)$  on the first roll,  $(3, 2)$  on the second, and  $(4, 3)$  on the third.