Linear Supremacy

Strands:

Number & Operations	
Algebra	X
Measurement	
Geometry	
Data & Probability	

Materials:

- 2 dice
- Graph paper (see back of book)

Where?

Outside	
Inside	X
On-line	
On-site	

In this game players will strategically graph lines to outplay and outsmart their opponents towards the ultimate goal of Linear Supremacy! This is a game for 2 to 4 players.

Set-Up:

- Players take turns rolling the dice. The two numbers that result from each roll will be an ordered pair (point) on a sheet of graph paper. The order and sign of these numbers is chosen by the players. For example, a roll of 6 and 2 produces one of the points (2, 6), (2, –6), (–2, 6), (–2, –6), (6, 2), (6, –2), (–6, 2), or (–6, –2).
- Players take turns rolling and plotting points until eight distinct ordered pairs are placed on the graph paper.
- The result is the *Linear Supremacy* gameboard.
- Decide who is Player 1 and who is Player 2. Player 1 goes first in Round 1, and Player 2 goes first in Round 2.

On Your Turn:

1. Draw a line on the game board that goes through one or more ordered pairs created in the set up.
2. State a correct equation for the line you have drawn. If your equation does not fit your line, you score no points and your turn ends.
3. If you state a correct equation, scoring is as follows. You must justify your score.
   - One point for each ordered pair from the gameboard that is on the line.
   - One point for constructing a line parallel to an existing line.
   - One point for constructing a line perpendicular to an existing line.
4. When every ordered pair on the gameboard has been used at least once, the first round is over. (For a 3 or 4-player game, the round is over once each point has been used at least twice.)
5. Play in Round 2 continues as in Round 1.
6. To start Round 2 players must construct a new game board as they did before Round 1.
7. Round 2 is complete when all ordered pairs of the new gameboard have been used as in step 4.

To Win:

- The player with the most points scored after two full rounds is the winner.

Variations:

8. During the set up, if you have different colors of dice, one can be designated to represent positive numbers and the other negative numbers.
9. On your turn roll a die. The number on the die must be used as the x- or y-intercept of the line you create. The intercept does not count in the points scored.

Extension:

10. On your turn, when determining an equation for a line, what forms of linear equations were most helpful? Why do you think so?
11. What point-scoring strategies do you want to remember for the next time you play this game?