

First connect 3 solution: By Catriona

When we first started playing the game we didn't think about if we should subtract or add and did it pretty randomly. My initial thoughts were to spread out on the game board and not stick around my competitor and also try not to have to pass my turn. As we played the game more times I noticed that if you decided to go with the easier to get numbers like 0, 1, 2, 3, 4, 5, 6, 7, 8 then you had a better chance of winning because it made my competitor have to go with the other numbers. We also realised that to go with the numbers that gave you more options of getting 3 in a row which were the middle numbers. Now that I was thinking more about my options I was winning more often and one round I won on my first 3 turns! We then began looking at the amount of ways of getting the numbers and spotted that there were 5 ways to get 1, 2, 3, 4, 5, 6 and alot lower ways of getting -1 to -5. Soon after we looked at the chances of rolling the numbers on the dice and discovered there was a way higher chance of rolling 1, 2, 3, 4, 5, 6, 7, 8. We looked at the chance of rolling the dice that we needed to make each total.

total	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
chance	$\frac{2}{36}$	$\frac{4}{36}$	$\frac{6}{36}$	$\frac{8}{36}$	$\frac{10}{36}$	$\frac{6}{36}$	$\frac{10}{36}$	$\frac{9}{36}$	$\frac{8}{36}$	$\frac{7}{36}$	$\frac{6}{36}$	$\frac{8}{36}$

total	7	8	9	10	11	12
chance	$\frac{6}{36}$	$\frac{5}{36}$	$\frac{4}{36}$	$\frac{3}{36}$	$\frac{2}{36}$	$\frac{1}{36}$

In the end it can just be luck or chance with which number you roll. In summary my strategy would be to!

- Stick around the numbers your competitor takes
- Think about which numbers your more likely to roll and use them
- Before using the top and bottom and edge numbers, use the middle ones

This will give you a good chance of winning but also good luck in the dice.