



CEMC at Home

Grade 4/5/6 - Monday, April 6, 2020

How Great Is Your Number?

You Will Need:

- At least two players
- A sheet of paper and a pencil for each player
- At least one pair of dice



How To Play:

1. Each player draws four squares on their paper.
2. Players take turns rolling a pair of dice.
3. On your turn, roll the pair of dice and announce the sum of the two numbers rolled.
4. Each player then places the ones digit of this sum in one of the empty squares on their paper.
For example, if this is the outcome of the roll,



$$\begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \end{array} + \begin{array}{|c|} \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \bullet \\ \hline \end{array} = 12$$

then each player places a “2” in one of the empty squares on their paper. If there is more than one empty square remaining, then they have a choice for where to place the “2”.

5. Continue taking turns until all squares are filled.
If there are two players, then each player will roll the dice twice.
6. Each player ends up with a four-digit number. The winner of the game is the player who has formed the greatest four-digit number. (It is possible for the game to end in a tie.)

Play this game a number of times and think about the following questions.

1. What is the least possible ones digit of the sum that you could get on your turn? What is the greatest possible ones digit you could get?
2. If you get a small ones digit, in which square should you place it? Why?
3. If you get a large ones digit, in which square should you place it? Why?
4. Which are the least likely ones digits to occur in this game? Which are the most likely ones digits to occur in this game?

Variations:

- A. Try the same game but with three squares, and then with five squares.
- B. Try the same game but take the ones digit of the product of the two numbers rolled on the dice, instead of the sum. How does this change the answers to the earlier questions?

More info:

Check out the CEMC at Home webpage on Tuesday, April 14 for answers to these questions.