

IT'S IMPOSSIBLE

This game can be played using just the number tiles from SUM IT UP!. The WILD tiles are **not** used in this game. No tiles? No problem. Use a deck of playing cards without the face cards and 10s. Randomly pick 5 cards. If you want to have smaller numbers, remove some of the higher numbers.

Number of players: unlimited number of players

Game Set up: To start the game place all yellow tiles number-side down in a draw pile central to all players. All players should have a piece of paper and writing utensil. All players take one tile from the draw pile. The player who draws the highest number will be Leader for the round. All tiles should be returned to the draw pile and tiles should be reshuffled. The Leader should draw 5 yellow tiles from the draw pile and leave them number side down. The remaining tiles should be removed from the central area to clear distractions. Then, red, green or blue tiles, each with the numbers 1, 2, 3, 4, 5, ... up to one number less than the total number of players should be placed number side up central to all players. (If there are 4 people playing, only the numbers 1, 2, and 3 are placed. If there are six players, then the numbers 1, 2, 3, 4, and 5 are placed. The color of these tiles can be any combination of red, blue, or green tiles.)

Game Play: The Leader flips the five yellow tiles number side up and read them aloud so all players can record each of the five numbers. Players calculate the smallest sum possible (adding the two smallest numbers) and record the sum and the addition sentence. They then calculate the largest sum (the sum of all 5 numbers) and record the sum and addition sentence. All sums between the smallest sum and the largest sum are then listed on the paper. For example; If the numbers drawn are 1, 2, 4, 4, 9, then the smallest sum is 3 and would be recorded as $3 = 2 + 1$ or $3 = 1 + 2$. The largest sum is 20 and the recording might look like this. $20 = 1 + 2 + 4 + 4 + 9$. Following this, the players would list the numbers 4, 5, 6, ...19 on their individual papers. (See table on back for how this might look) **NOTE:** **Determining the smallest and largest sums as well as the numbers between can be done either individually or as a whole. If done individually, the "race" begins as soon as the tiles are flipped and read aloud. If done as a whole, then all players are to record the smallest and largest sums and the numbers between the smallest and largest sums together before the race begins.**

Once the above is completed, all players work individually to find ways to use the tiles drawn to write addition sentences with sums of each of the numbers listed, making sure to use a number only once if the number is only shown once. If the number is shown twice, then the number can be used twice. If it is impossible to make the sum using the numbers available, the player should record "Impossible" next to it. For example, using the tiles indicated above: I could not make the sum of 4. A player may want to write $4 + 0$, but seeing as there is no zero tile, this is not possible. The numbers used for the addends need to be visible on the tiles and a minimum of two addends must be written for each sum. Below is what a players paper might look like using the tiles 1, 2, 4, 4, 9. NOTE: There are often several ways to make a sum ($10 = 9 + 1$ or $4 + 4 + 2$) however, only one recording is necessary.

As soon as a player thinks he has recorded all possible sums, he takes a number tile from the center of the table. If he is the first player, he takes the "1". Second player would take the "2", etc. Once all tiles are taken, play time stops. This will leave the last player without a playing number tile.

Tiles drawn 1, 2, 4, 4, 9	
The original set up of the game	After the game is finished
3 = 1 + 2	3 = 1 + 2
4 =	4 = Impossible
5 =	5 = 4 + 1
6 =	6 = 4 + 2
7 =	7 = 4 + 2 + 1
8 =	8 = 4 + 4 (This could be done because there were two 4 tiles drawn.)
9 =	9 = 4 + 4 + 1
10 =	10 = 4 + 4 + 2
11 =	11 = 4 + 4 + 2 + 1
12 =	12 = 9 + 2 + 1
13 =	13 = 9 + 4
14 =	14 = 9 + 1 + 4
15 =	15 = 9 + 2 + 4
16 =	16 = 9 + 1 + 2 + 4
17 =	17 = 9 + 4 + 4
18 =	18 = 9 + 1 + 4 + 4
19 =	19 = 2 + 4 + 4 + 9
20 = 1 + 2 + 4 + 4 + 9	20 = 1 + 2 + 4 + 4 + 9

The person who took the “1” reads his addition sentences for each number, stating, “It’s impossible” when a particular sum cannot be made using the numbers on the tiles. If that player has made no errors, that player earns 15 points. If the player with the “1” made an error in one of the addition sentences or called one sum impossible when in fact it was possible, that player earns no points and checking of the player who drew the “2” begins. If that player made no errors, that player would earn the 15 points. If errors are found, the checking continues on to the next person.

Once a perfect player has been identified and granted the 15 points, players who have a number tile and no errors following that player each earn 5 points provided they have no errors.

Each round may be its own game or players may wish to keep track of the points and play until the first player reaches 50 points.

Note: This game can be played with the tiles from **SUMS OF 20**, **SUMS OF 100**, **SUM OF WHICH INTEGER** as well. These are much more challenging games. The tiles from **SUMS OF FRACTIONS** OR **SUMS OF DECIMALS** can also be used. The sums between the lowest and the highest for the decimals would all be multiples of 5 and the fraction tiles would require the players to find all the sums in the smallest fractional unit shown in the 5 start tiles.

To purchase Sum It Up! please follow this link:
<https://www.didax.com/math/sum-it-up-games.html>

If you have questions, please contact me at thesumofwhich@gmail.com