

# Fraction NIM

FOCUS: Students will use mental math to add fractions to a target number.

Directions:

First, choose a target number between 5 and 20.

Next, the first player places a token on the board and states the number.

Then, the next player places another token on the board and mentally adds that number to the first number. Continue taking turns.

Last, the goal is to be the person who adds the last number to equal the target number.

2	2	2	2	2
1	1	1	1	1
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

Example Game:

The target number is 5.

- Player 1 chooses  $\frac{3}{4}$
- Player 2 mentally adds  $\frac{1}{2} = 1 \frac{1}{4}$
- Player 1 mentally adds 2 =  $2 \frac{1}{4}$
- Player 2 mentally adds  $\frac{1}{2} = 2 \frac{3}{4}$
- Player 1 thinks about adding 2, but that would give  $4 \frac{3}{4}$  and the other player just would have to add  $\frac{1}{4}$  to win.
- Player 1 changes their mind and only adds 1 leaving many options open =  $3 \frac{3}{4}$
- Player 2 adds  $\frac{1}{4}$  and realizes that they have lost the game = 4
- Player 1 adds 1 and wins the game.

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