Race to 250 (and back down to 0)

materials

- dice
 1 ten-sided "ones" die (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)
 1 ten-sided "tens" die (00, 10, 20, 30, 40, 50, 60, 70, 80, 90)¹
- base ten blocks
 30 "ones" units (1 cm × 1 cm × 1 cm)
 30 "tens" longs (10 cm × 1 cm × 1 cm)
 5 "hundreds" flats (10 cm × 10 cm × 1 cm)
- place value mat

participants

• 2 players

who roll the dice, build the numbers, trade up or down (10 ones for a ten, 10 tens for a hundred, 1 hundred for 10 tens, 1 ten for 10 ones) as necessary

• 1 banker

who makes sure the numbers called and trades made are correct and who makes sure a player has completed their turn before the other player gets to roll the dice

how to play

Both players start with 0 at the beginning of the game (thus, an empty place value mat). Players take turns. Each turn consists of a roll of the dice, building the number rolled with the base ten blocks and then adding the number built to their existing total, trading as necessary so that their total at the end of a turn never exceeds 9 in any column.



wrong [13 ones]



Play continues: at the end of each turn players read their new total out loud before passing the dice to the other player. Players take turns, rolling a new number, adding it to the previous total on their place value mat, trading and regrouping as necessary so there are never more than 9 blocks in a column, then reading out loud their new total, until one player reaches or exceeds 250.

¹ Note that the highest possible roll is 90 + 9 = 99 and the lowest is 00 + 0 = 0.

winning and losing

The player who reads a total greater than or equal to 250 is the winner of the race up to 250. The loser does NOT get another roll, even if the winner rolled first and thereby had more rolls (more chances) to reach 250. Oh well...

BUT !!!

Now the game changes to a race down to 0, and the loser has a head start (equal to the winner's margin of victory)!

The loser rolls the dice and then, instead of building the number rolled from the banker's supply of base ten blocks, the loser removes the number rolled from their existing total.

(An example: winner wins with 274; loser has 238. So loser gets to roll first on the way down. Loser rolls 64, so they have to remove 6 tens and 4 ones from their total of 238 (= 2 hundreds, 3 tens, and 4 ones). There aren't enough tens to remove 6 of them, so loser trades in a hundred for 10 tens and we see a total of 1 hundred, 13 tens, and 4 ones on the place value mat. The loser removes 6 tens and 4 ones from their total and gives the blocks to the banker. The loser's new total is 174, giving them a substantial lead and a good chance of being the winner on the way down.)

Play continues: at the end of each turn players read their new total out loud before passing the dice to the other player. Players take turns, rolling a new number, taking it from the previous total on their place value mat, reading out loud their new total, until one player reaches 0 or "goes bust": they don't have enough on their place value mat to take away the amount they rolled.

(An example: on the race down to 0, a player has 83 on their place value mat and rolls 92. They win! Any roll equal to or greater than the number on your place value mat—83, in this hypothetical case—is a winning roll on the race down to 0.)

modifications and extensions: Diffies (especially)

Diffies, where the student rolls dice (the same dice they used in their race game) to get a number in each of the four corners and then subtracts (using the blocks to help with the trading or regrouping and checking their results with addition) their way down to 0, entering the differences between the corner amounts, and generating new corners as they go, are an obvious extension to race games.

You can also change the game by varying the dice you're using and/or the number you're racing up to. For example, with early primary students, you might want to just race up to 20 (which might turn out to be slightly over 20) and use a single die with the customary 1-6 dots per face. With older, students, more sophisticated in the ways of base ten numeration, you might want to race to 2500, using a hundreds die and lots more base ten blocks (30 ones, 30 tens, 30 hundreds, and 5 thousands). You can also get into fractions race games with sixths dice and eighths dice. And so on. I'll discuss all this and more later.