

FACTORIZATION RACE

Level	3 (Age group 11 – 14)
Resources Required	Note cards with single digit numbers
Alternate Options for the Resources	Students are to make the notecards with single digit numbers: <ol style="list-style-type: none"> 1. Cut 10 papers to the length of your finger and the width of 4 fingers 2. On each notecard write one number from 0-9 3. Make one set of 0-9 cards per player
Strand Covered	Number and Operations
Targeted Skills	Place value and prime factorization
Inspired by	Third Space Learning
Time Required	10 minutes for the game 10 minutes for preparation
Previous Learning Required	Numbers from 1-4000
Support Required	Medium support

Rules of the Game:

Goal	Arrange yourself as a group the fastest. The group with the most points at the end of the game wins
Rules	Once a player has decided to be a specific place value, they are not allowed to switch until the end of the game To win a point, the group must be the first to arrange themselves in order and the first to say “done”. The group is not allowed to discuss amongst themselves what the order or numbers should be
Steps	Step 1: Make sure each player (8 players) has a set of notecards from 0-9 Step 2: The players group in groups of 4. Each player decides what place value they are. For example, player 1 is hundreds, player 2 is tens and player 3 is ones and player 4 is thousands Step 3: The adult calls out a number between 1000-4000. For example, “4675”. Step 4: The groups then arrange themselves by each player figuring out which number notecard they should hold up and standing in order. For example, player 1 should hold “4”, player 2 “6”, player 3 “7” and player 4 “5” and stand in order.

	<p>step 5: the first group to factorize their number correctly providing at least 3 prime factors gets one point</p> <p>Step 6: The first group to do this correctly gets one point</p> <p>Step 7: This process is repeated 4 times and the players then switch which place value they are</p>
Variations of the Game	<ol style="list-style-type: none"> 1. This game can be played by limiting the notecards in each player's hands. For example, before the games starts, each player has to only hold onto 5 cards each of their choice. The adult then calls out questions like "make the largest number with 2 in the tens column that you can". 2. The number of place values can be increased to incorporate 10,000s (5 in a group) or to one decimal place (5 in a group). For example, 40506 or 4567.8 respectively
Enrichment	<p>players can instead try to find the square root of the number and express it in a simplified form or decimal form</p>
Simplification	<ol style="list-style-type: none"> 1. players can factorize giving 2 prime factors