# MATH GAME ABOUT FACTORS , PRIME AND COMPOSITE NUMBERS

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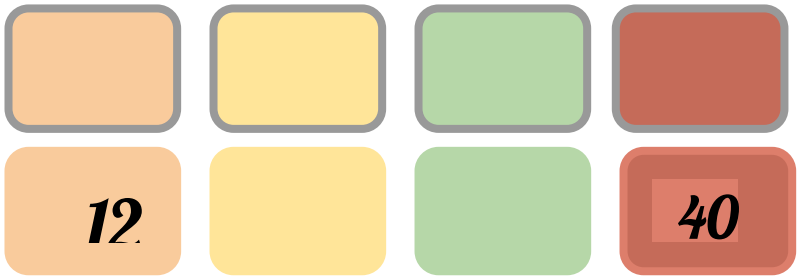
## Description of the game:

The idea of these games is that students practice factors, composite and prime numbers as well as have fun and enjoy the learning process through teamwork

- ➔ **Age group:** 4th graders and over. But if you want to challenge younger students you can start with 3rd graders!
- ➔ **Time required:** 45 minutes.
- ➔ **Number of players:** Minimum 3 player per board // maximum 6 players per board.

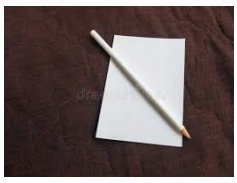
## What 's in the box ?

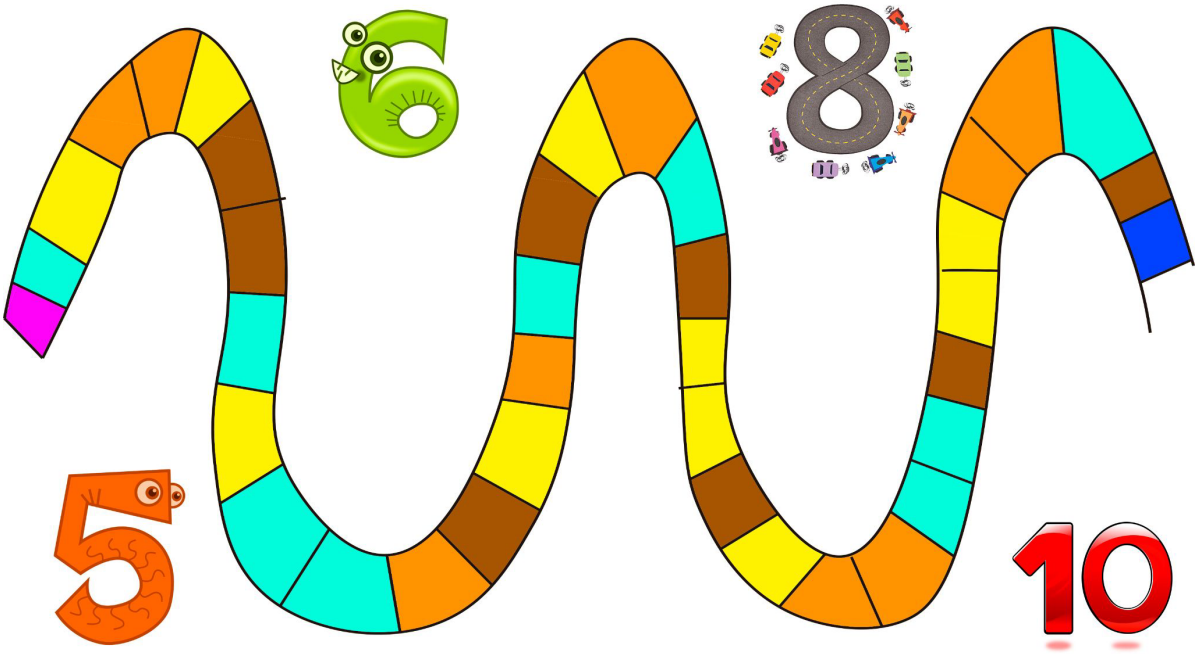
- Board
- Tokens
- White papers
- Black pencil
- Eraser
- Dice
- Sand clock
- Cards from N1 to N100 (Brown,yellow, green and orange)




FRONT PART OF CARDS

BACK PART OF CARDS






Discovering and searching for factors, prime numbers and composite numbers!

Instructions to play the game:

1. Split the class ideally in groups of four.
2. Each group will receive a box with the game.
3. Within the group make equal teams (ex: if four players, form two groups of 2 players on each)
4. One person of the whole group grabs a white paper and writes the team's names, where you will record the points while you are playing (teams table).
5. Each team will have one token.
6. Place the token in the starting point of the board(pink).
7. One player of each team will roll the dice, the team that gets the highest number starts. Let 's get started!
8. The team that starts, rolls the dice then moves the numbers of squares (in the board) that the dice shows. (N4 = 4 squares)
9. The square you lie on will have a colour, that colour represents the card you need to take. (brown square = brown card)

CARDS RULES:

- Brown-> say all the factors of the number your card shows. (1 point)
- Yellow -> say if the number shown is a composite or prime number. (1 point)
- Green -> on a white paper draw all the possible arrays that the number shown has. (1 point)
- Orange-> name all the factors of the number shown and tell if its composite or prime number. (2 points)

10. From the time the team takes the card the time starts running (turn sand clock).
11. If the answer is correct, then the team gets the points corresponding to each card, record the point on the teams table. If the answer is wrong there are no points for your team.
12. Now is the other team's turn!
13. Continue taking turns.
14. The game is over when one team gets to the final square (blue).
15. Count the points of each team, the team that has the most points WINS! no matter if they arrived at the last square.

TIME TO PRACTICE AND PLAY!

**Answer sheet:**

| Number | C or P | Factors and C or P | Arrays | Factors |
|---|---|---|---|---|
| 1 | C | 1 C | 1x1 | 1 |
| 2 | P | 1,2 P | 2x1<br>1x2 | 1,2 |
| 3 | P | 1,3 P | 3x1<br>1x3 | 1,3 |
| 4 | C | 1,2,4 C | 4x1<br>1x4<br>2x2 | 1,2,4 |
| 5 | P | 1,5 P | 5x1<br>1x5 | 1,5 |
| 6 | C | 1,2,3,6 C | 6x1<br>1x6<br>3x2<br>2x3 | 1,2,3,6 |
| 7 | P | 1,7 P | 7x1<br>1x7 | 1,7 |
| 8 | C | 1,2,4,8 C | 1x8<br>8x1<br>4x2<br>2x4 | 1,2,4,8 |
| 9 | C | 1,3,9 C | 9x1<br>1x9 | 1,3,9 |
| 10 | C | 1,2,5,10 C | 10x1<br>1x10<br>5x2<br>2x5 | 1,2,5,10 |
| 11 | P | 1,11 P | 11x1<br>1x11 | 1,11 |
| 12 | C | 1,2,3,4,6,12 C | 12x1<br>1x12<br>6x2<br>2x6<br>3x4<br>4x3 | 1,2,3,4,6,12 |
| 13 | P | 1,13 P | 13x1<br>1x13 | 1,13 |
| 14 | C | 1,2,7,14 C | 14x1<br>1x14<br>7x2<br>2x7 | 1,2,7,14 |
| 15 | C | 1,3,5,15 C | 1x15<br>15x1 | 1,3,5,15 |

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| | | | 5x3<br>3x5 | |
| 16 | C | 1,2,4,8,16 C | 16x1<br>1x16<br>8x2<br>2x8 | 1,2,4,8,16 |
| 17 | P | 1,17 P | 17x1<br>1x17 | 1,17 |
| 18 | C | 1,2,3,6,9,18 C | 18x1<br>1x18<br>9x2<br>2x9 | 1,2,3,6,9,18 |
| 19 | P | 1,19 P | 19x1<br>1x19 | 1,19 |
| 20 | C | 1,2,4,5,10,20 C | 20x1<br>1x20<br>2x10<br>10x2<br>5x4<br>4x5 | 1,2,4,5,10,20 |
| 21 | C | 1,3,7,21 C | 21x1<br>1x21<br>7x3<br>3x7 | 1,3,7,21 |
| 22 | C | 1,2,11,22 C | 22x1<br>1x22<br>11x2<br>2x11 | 1,2,11,22 |
| 23 | P | 1,23 P | 23x1<br>1x23 | 1,23 |
| 24 | C | 1,2,3,4,6,8,12,24 C | 24x1<br>1x24<br>12x2<br>2x12<br>6x4<br>4x6 | 1,2,3,4,6,8,12,24 |
| 25 | C | 1,5,25 C | 25x1<br>1x25 | 1,5,25 |
| 26 | C | 1,2,13,26 C | 26x1<br>1x26<br>13x2<br>2x13 | 1,2,13,26 |
| 27 | C | 1,3,9,27 C | 27x1<br>1x27<br>9x3<br>3x9 | 1,3,9,27 |

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| 28 | C | 1,4,7,28 C | 28x1<br>1x28<br>7x4<br>4x7 | 1,4,7,28 |
| 29 | P | 1,29 P | 29x1<br>1x29 | 1,29 |
| 30 | C | 1,3,5,6,10,30 C | 30x1<br>1x30<br>10x3<br>3x10<br>15x2<br>2x15 | 1,3,5,6,10,30 |
| 31 | P | 1, 31 P | 31x1<br>1x31 | 1,31 |
| 32 | C | 1,4,8,32 C | 32x1<br>1x32<br>8x4<br>4x8 | 1,4,8,32 |
| 33 | C | 1,11,33 C | 33x1<br>1x33<br>11x3<br>3x11 | 1,11,33 |
| 34 | C | 1,2,17,34 C | 34x1<br>1x34 | 1,2,17,34 |
| 35 | C | 1,5,7,35 C | 35x1<br>1x35<br>5x7<br>7x5 | 1,5,7,35 |
| 36 | C | 1,3,4,6,9,12,36 C | 36x1<br>1x36<br>12x3<br>3x12<br>9x4<br>4x9 | 1,3,4,6,9,12,36 |
| 37 | P | 1,37 P | 37x1<br>1x37 | 1,37 |
| 38 | C | 1,2,19,38 C | 38x1<br>1x38 | 1,2,19,38 |
| 39 | C | 1,3,13,39 C | 39x1<br>1x39 | 1,3,13,39 |
| 40 | C | 1,4,5,8,10 C | 40x1<br>1x40<br>20x2<br>2x20<br>10x4<br>4x10 | 1,4,5,8,10 |

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| | | | 5x8<br>8x5 | |
| 41 | P | 1,41 P | 41x1<br>1x41 | 1,41 |
| 42 | C | 1,6,7,42 C | 42x1<br>1x42<br>6x7<br>7x6 | 1,6,7,42 |
| 43 | P | 1,43 P | 1x43<br>43x1 | 1,43 |
| 44 | C | 1,2,4,11,44 C | 1x44<br>44x1<br>2x22<br>22x2<br>4x11<br>11x4 | 1,4,11,44 |
| 45 | C | 1,5,9,45 C | 45x1<br>1x45<br>5x9<br>9x45<br>15x3<br>3x15 | 1,5,9,45 |
| 46 | C | 1,2,23,46 C | 46x1<br>1x46<br>2x23<br>23x2 | 1,2,23,46 |
| 47 | P | 1,47 P | 1x47<br>47x1 | 1,47 |
| 48 | C | 1,4,6,8,12,48 C | 48x1<br>1x48<br>2x24<br>24x2<br>6x8<br>8x6 | 1,4,6,8,12,48 |
| 49 | C | 1,7,49 C | 49x1<br>1x49 | 1,7,49 |
| 50 | C | C1, 2, 5, 10,25,50 | 50x1<br>1x50<br>10x5<br>5x10 | 1, 2, 5, 10,25,50 |
| 51 | C | C 1,3,17,51 | 51x1<br>1x51 | 1,3,17,51 |
| 52 | C | C 1,2,4,13,26,52 | 52x1<br>1x52<br>2x26 | 1,2,4,13,26,52 |

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| | | | 26x2 | |
| 53 | P | 1,53 P | 1x53<br>53x1 | 1,53 |
| 54 | C | C 1,2,3,6,9,18,27,54 | 54x1<br>1x54<br>2x27<br>27x2 | 1,2,3,6,9,18,27,54 |
| 55 | C | C 1,5,11,55 | 55x1<br>1x55<br>5x11<br>11x5 | 1,5,11,55 |
| 56 | C | C 1,2,4,7,8,14,28,56 | 56x1<br>1x56<br>2x28<br>28x2 | 1,2,4,7,8,14,28,56 |
| 57 | C | C 1,3,19,57 | 57x1<br>1x57 | 1,3,19,57 |
| 58 | C | C 1,2,29,58 | 58x1<br>1x58<br>2x29<br>29x2 | 1,2,29,58 |
| 59 | P | 1, 59 P | 1x59<br>59x1 | 1,59 |
| 60 | C | C<br>1,2,3,4,5,6,10,12,15,20,<br>30,60 | 60x1<br>1x60<br>10x6<br>6x10<br>30x2<br>2x30<br>15x4<br>4x15 | 1,2,3,4,5,6,10,12,15,20,<br>30,60 |
| 61 | P | 1,61 P | 1x61<br>61x1 | 1,61 |
| 62 | C | C 1,2,31,62 | 62x1<br>1x62<br>2x31<br>31x2 | 1,2,31,62 |
| 63 | C | C 1, 3, 7, 9 , 21,63 | 63x1<br>1x63<br>9x7<br>7x9 | 1, 3, 7, 9 , 21,63 |
| 64 | C | 1,8,64 C | 8x8<br>64x1<br>1x64<br>2x32 | 1,8,64 |

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| | | | 32x2 | |
| 65 | C | 1,5,13,65 C | 65x1<br>1x65<br>13x5<br>5x13 | 1,5,13,65 |
| 66 | C | 1,2,3,6,11,22,33,66 C | 66x1<br>1x66 | 1,2,3,6,11,22,33,66 |
| 67 | P | 1,67 P | 1x67<br>67x1 | 1,67 |
| 68 | C | C 1,2,4,17,34,68 | 68x1<br>1x68<br>2x34<br>34x2 | 1,2,4,17,34,68 |
| 69 | C | C 1,3,23,69 | 69x1<br>1x69 | 1,3,23,69 |
| 70 | C | C 1,2,5,7,10,14,35,70 | 70x1<br>1x70<br>7x10<br>10x7<br>5x14<br>14x5 | |
| 71 | P | 1, 71 P | 1x71<br>71x1 | 1,71 |
| 72 | C | 1,2,3,4,6,8,9,12,18,24,36,72 C | 72x1<br>1x72 | 1,2,3,4,6,8,9,12,18,24,36,72 |
| 73 | P | 1, 73 P | 1x73<br>73x1 | 1,73 |
| 74 | C | C 1,2,37,74 | 74x1<br>1x74<br>2x37<br>37x2 | 1,2,37,74 |
| 75 | C | C 1,3,5,15,25,75 | 75x1<br>1x75<br>15x5<br>5x15 | 1,3,5,15,25,75 |
| 76 | C | C 1,2,4,19,38,76 | 76x1<br>1x76<br>38x2<br>2x38<br>4x19<br>19x4 | 1,2,4,19,38,76 |
| 77 | C | C 1,7,11,77 | 77x1<br>1x77 | 1,7,11,77 |

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| | | | 11x7<br>7x11 | |
| 78 | C | C 1,2,3,13,26,39,78 | 78x1<br>1x78<br>2x39<br>39x2 | 1,2,3,13,26,39,78 |
| 79 | P | P 1,79 | 1x79<br>79x1 | 1,79 |
| 80 | C | C 1, 2, 4, 5, 8, 10, 16, 20, 40,80 | 80x1<br>1x80<br>10x8<br>8x10<br>5x16<br>16x5 | 1, 2, 4, 5, 8, 10, 16, 20, 40,80 |
| 81 | C | C 1,3,9,27,81 | 81x1<br>1x81<br>9x9 | 1,3,9,27,81 |
| 82 | C | C 1,2,41,82 | 82x1<br>1x82 | 1,2,41,82 |
| 83 | P | 1,83 P | 1x83<br>83x1 | 1,83 |
| 84 | C | 1,2,3,4,6,7,12,14,21,28, 24,84 C | 84x1<br>1x84<br>2x42<br>42x2<br>6x7<br>7x6 | 1,2,3,4,6,7,12,14,21,28, 24,84 |
| 85 | C | C 1,5,17,85 | 85x1<br>1x85<br>5x17<br>17x5 | 1,5,17,85 |
| 86 | C | C 1,2,43,86 | 86x1<br>1x86<br>43x2<br>2x43 | 1,2,43,86 |
| 87 | C | C1,3,29,87 | 87x1<br>1x87 | 1,3,29,87 |
| 88 | C | C 1,2,4,8,11,22,44,88 | 88x1<br>1x88<br>8x11<br>11x8 | 1,2,4,8,11,22,44,88 |
| 89 | P | 1,89 P | 1x89<br>89x1 | 1,89 |
| 90 | C | C 1,5,10,15,18,30,45,90 | 90x1<br>1x90 | 1,5,10,15,18,30,45,90 |

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| | | | 9x10<br>10x9<br>5x18<br>18x5<br>6x15<br>15x6 | |
| 91 | C | C1, 7, 13, 91 | 91x1<br>1x91 | 1, 7, 13, 91 |
| 92 | C | C 1,2,4,23,46,92 | 92x1<br>1x92<br>4x23<br>23x4<br>2x46<br>46x2 | 1,2,4,23,46,92 |
| 93 | C | C 1,3,31,93 | 93x1<br>1x93 | 1,3,31,93 |
| 94 | C | C 1,2,47,94 | 94x1<br>1x94<br>2x47<br>47x2 | 1,2,47,94 |
| 95 | C | C 1,5,19,95 | 95x1<br>1x95<br>5x19<br>19x5 | 1,5,19,95 |
| 96 | C | C 1,3,6,12,24,48,96 | 96x1<br>1x96<br>2x48<br>48x1<br>12x8<br>8x12 | 1,3,6,12,24,,48,9 |
| 97 | P | P,1,97 | 1x97<br>97x1 | ,1,97 |
| 98 | C | C 1,2,49,98 | 1x98<br>98x1<br>2x49<br>49x2 | 1,7,49,98 |
| 99 | C | C 1,11,33,99 | 1x99<br>99x1<br>3x33<br>33x3<br>9x11<br>11x9 | 1,11,33,99 |
| 100 | C | C 1,2,5,25,50,100 | 1x100<br>100x1<br>2x50<br>50x2<br>5x25<br>25x5 | 1,5,25,50,100 |