

FOUR IN A ROW

A Skills Practice Game

Presented by
Center for Mathematics and Teaching, Inc

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FOUR IN A ROW: DIRECTIONS

Four in a Row games provide skills practice. The object is to get four spaces across, down, or diagonally. Players earn spaces by completing computation problems.

Why?

- Attain skills so that problem solving is not derailed by lack of skills fluency.
- Practice in a game format

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 small objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Launch Activity: Use Four in a Row: Addition to introduce the rules and procedures of the game. Play as a class (teacher is “Player 1” and class is “Player 2”).

- To start the game, Player 1 (teacher) chooses one number from Box A and one number from Box B, and puts small objects on them.
- Player 1 finds the sum of the selected numbers from Box A and Box B and puts her colored counter on the sum on the game board. Player 2 confirms that the answer is correct. If it is not correct, then Player 2 gets the square.
- Player 2 moves ONE of the markers (either from Box A OR from Box B), finds the sum, and puts her marker on that sum on the game board. Player 1 confirms that the answer is correct. If it is not correct, then Player 1 gets the square.
- Play continues until one player gets four spaces in a row – across, down, or diagonally.

Accountability/Follow up Ideas:

- Ask students to make an “Answer Key Grid” of all possible sums prior to playing. An Answer Key Grid template is provided, along with one sample answer key.
- Encourage students to create their own Four in a Row games. First make an answer key grid, then make a game board. A Four in a Row Game Board template is provided here.

ADDITION

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game: Players alternate choosing addends from Box A and Box B to create sums. They cover sums on the game board. The winner is the first player to get four in a row.

Box A: Addend		
2	3	5
6	9	12

Box B: Addend		
4	6	8
14	20	30

Game Board: Sums					
20	11	39	16	28	19
26	7	17	22	33	25
18	11	12	17	32	12
36	23	23	32	13	35
14	9	29	10	42	13
15	6	16	20	20	10

WHOLE NUMBER DIVISION

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game: Players alternate choosing a dividend Box A and a divisor from Box B. They find the quotient and cover it on the game board. The winner is the first player to get four in a row.

Box A: Expression		
480	1920	1200
2880	240	1440

Box B: Expression		
12	10	24
40	8	16

Game Board: Quotients					
40	100	360	10	240	12
120	6	48	80	60	20
144	160	12	36	72	120
30	24	180	50	20	30
15	90	75	180	120	192
60	240	288	30	48	150

PERCENTS

Players: 2-3

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Rules:

Two players alternate choosing one percent from Box A and one quantity from Box B, while the third checks answers with the answer key. Find the percent of the quantity, using any method. They place their counter on their answer. The winner is the first player to get four in a row. Change roles after each round.

Box A: Percent		
1%	10%	20%
25%	50%	80%

Box B: Quantity		
10	24	50
84	100	120

Game Board: Percent of the Quantity					
60	20	8.4	12	5	0.1
2.4	10	21	0.5	1.2	80
96	67.2	8	25	4.8	1
5	40	16.8	24	10	0.84
30	1	6	19.2	0.24	42
12.5	2	25	0.24	12.5	12

EXPRESSIONS

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game: Players alternate choosing a constant from Box A and an expression from Box B. They find the product and cover it on the game board. The winner is the first player to get four in a row.

Box A: Constant		
2	3	4
5	6	8

Box B: Expression		
$x + 2$	$2x + 4$	$2x + 1$
$3x + 5$	$5x + 3$	$4x + 2$

Game Board: Product					
$2x + 4$	$6x + 12$	$5x + 2$	$24x + 12$	$12x + 24$	$12x + 6$
$6x + 12$	$8x + 16$	$16x + 8$	$20x + 10$	$8x + 4$	$9x + 15$
$4x + 8$	$25x + 15$	$10x + 6$	$18x + 30$	$12x + 20$	$20x + 12$
$30x + 18$	$6x + 3$	$3x + 6$	$15x + 25$	$6x + 10$	$40x + 24$
$8x + 16$	$4x + 2$	$32x + 16$	$16x + 32$	$12x + 6$	$4x + 8$
$10x + 20$	$24x + 40$	$15x + 9$	$8x + 4$	$10x + 5$	$16x + 8$

EQUATIONS

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game: Players alternate setting expressions from Box A and Box B equivalent to each other to create an equation. They cover the solution to the equation on the game board. The winner is the first player to get four in a row.

Box A: Expression		
$x + 3$	$x - 4$	$3x$
$\frac{x}{4}$	$\frac{1}{2}x$	$2x$

Box B: Expression		
24	18	6
36	3	12

Game Board: Solutions ($x = ?$)					
96	9	24	8	6	12
18	72	28	48	4	16
12	6	9	15	22	48
1.5	0	10	12	72	36
12	24	3	2	40	3
1	6	33	7	21	144

AREAS OF TRIANGLES

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game: Players alternate choosing a base (in units) from Box A and a height (in units) from Box B. They find the area of a triangle (in square units) and cover it on the game board. The winner is the first player to get four in a row.

Box A: Base (in units)		
12	8	5
10	9	6

Box B: Height (in units)		
4	20	7
15	3	11

Game Board: Area of Triangle (in sq units)					
67.5	16	42	60	100	15
55	120	31.5	80	37.5	33
24	90	12	17.5	28	66
40	13.5	10	35	50	12
18	75	80	7.5	21	60
0	9	49.5	44	18	27.5

ANSWER KEY SAMPLE: PERCENTS

Box A: Percent		
1%	10%	20%
25%	50%	80%

Box B: Quantity		
10	24	50
84	100	120

		Box B						
		% of the quantity	10	24	50	84	100	120
Box A	1%	0.1	0.24	0.5	0.84	1	1.2	
	10%	1	2.4	5	8.4	10	12	
	20%	2	4.8	10	16.8	20	24	
	25%	2.5	6	12.5	21	25	30	
	50%	5	12	25	42	50	60	
	80%	8	19.2	40	67.2	80	96	

FOUR IN A ROW: GAME GRID

Players: 2

Materials: Board game, 2 sets of colored counters (for the game board), 2 objects (e.g. cubes, paperclips, cut up paper) that will cover numbers in Box A and Box B

Object of the Game:

Box A		

Box B		

Game Board					

FOUR IN A ROW: ANSWER KEY GRID

Box A		

Box B		

(Rule)	Box A					

The Center for Mathematics and Teaching is dedicated to igniting and nurturing passion for mathematics in middle school students. We see the classroom as a place of joy and wonder, collaboration and purpose, perseverance and empowerment. We want all students to succeed in mathematics, as they explore its beauty in patterns, concepts, connections, and applications.

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