

The Commutative Property

The **commutative property of addition** ($a + b = b + a$) says that when two numbers are added, changing the order of the addends does not change the sum; for example, $9 + 6 = 6 + 9$.

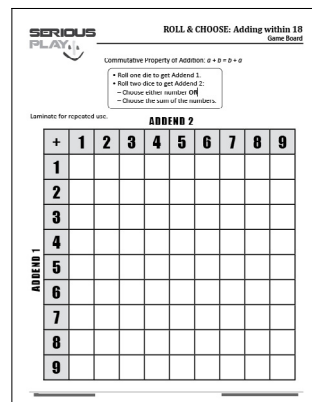
Game Description and Materials

Roll & Choose is a game for two or more players that uses the commutative property of addition to provide mental math practice using addition facts to 18 (excluding 0). Players compete to find sums that fill spaces on a Game Board. The object of the game is to be the first player to fill four spaces in a row.

Game materials include one Game Board, three dice (not included), and a colored marker (not included) for each player.

Game Board


The Game Board is a blank addition chart for sums to 18 (excluding zero). Each space on the Game Board is the intersection of a unique pair of addends. Addend 1 is identified along the left column of the Game Board; Addend 2 is identified along the top row.







Let's Play!

Players place the Game Board between them. They decide who takes the first turn.


1. Player 1 begins.


A. **Addend 1:** Player 1 rolls one die to get Addend 1: .

B. **Addend 2:** Player 1 rolls two dice to get Addend 2:  and . She decides which number(s) to use for Addend 2:

i. She may choose the sum of the dice:  and . She says, "Three plus seven equals 10." On the Game Board, she follows 3 along the Addend 1 row and 7 down the Addend 2 column. Then, she finds the space where the two meet and uses her colored pencil to write the sum, 10.

ii. OR she may choose the number on one of the die:

a. : She says, "Three plus five equals 8." She follows 3 along the Addend 1 row and 5 down the Addend 2 column. When she finds the space where the two meet, she uses her colored pencil to write the sum, 8.

b. : She says, "Three plus two equals 5." She follows 3 along the Addend 1 row and 2 down the Addend 2 column. When she finds the space where the two meet, she uses her colored pencil to write the sum, 5.

i.

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3							10		
	4									
	5									
	6									
	7									
	8									
	9									

ii.

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3					8				
	4									
	5									
	6									
	7									
	8									
	9									

iib.

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3			5						
	4									
	5									
	6									
	7									
	8									
	9									

C. **Commutative Property:** Player 1 uses the commutative property to reverse the order of the addends she has chosen: Addend 1 becomes Addend 2, and Addend 2 becomes Addend 1. (3 + 7 becomes 7 + 3, 3 + 5 becomes 5 + 3, and 3 + 2 becomes 2 + 3.) She locates the correct spaces and uses her colored pencil to write the sums.

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3									
	4									
	5									
	6									
	7			10						
	8									
	9									

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3					8				
	4									
	5			8						
	6									
	7									
	8									
	9									

		ADDEND 2								
+		1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2					5				
	3			5						
	4									
	5									
	6									
	7									
	8									
	9									

2. Player 1 and Player 2 alternate turns. If a player finds that the spaces indicated by the roll of the dice have already been filled, that player loses the turn.

3. The winner is the first player to fill four spaces horizontally (and vertically).





ROLL & CHOOSE

Commutative Property of Addition

$$a + b = b + a$$

GOAL: Fill four squares in a row.

In Order

1. **Roll** one die to get Addend 1.
2. **Roll** two dice to get Addend 2.
 - A. **Choose** either number **OR**
 - B. **Choose** the sum of the numbers.
3. **Write** the sum (Addend 1 + Addend 2) on the “meeting square” along the Addend 1 row and down the Addend 2 column.
4. **Reverse** the addends (Addend 1 becomes Addend 2 and Addend 2 becomes Addend 1).
5. **Write** the sum (Addend 2 + Addend 1) on the “meeting square” along the Addend 1 row and down Addend 2 column.

Always

Take turns.

The WINNER is the first to fill four squares in a row.

Commutative Property of Addition: $a + b = b + a$

- Roll one die to get Addend 1.
- Roll two dice to get Addend 2:
 - Choose either number **OR**
 - Choose the sum of the numbers.

Laminate for repeated use.

ADDEND 2

	+	1	2	3	4	5	6	7	8	9
ADDEND 1	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									

Commutative Property of Addition: $a + b = b + a$

- Roll one die to get Addend 1.
- Roll two dice for Addend 2:
 - Use either number.
 - Use the sum of the numbers.

Laminate for repeated use.

ADDEND 2

ADDEND 1

+	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9	10
2	3	4	5	6	7	8	9	10	11
3	4	5	6	7	8	9	10	11	12
4	5	6	7	8	9	10	11	12	13
5	6	7	8	9	10	11	12	13	14
6	7	8	9	10	11	12	13	14	15
7	8	9	10	11	12	13	14	15	16
8	9	10	11	12	13	14	15	16	17
9	10	11	12	13	14	15	16	17	18