TEACHER INSTRUCTIONS

Four by Four

MATERIALS:
- deck of cards
- pencils

GAME PLAY

Using a deck of playing cards, with all of the diamonds removed and no face cards (aces are included and worth 1), the teacher draws one card at a time and announces its value to the class.

When a number is called, students must immediately write it in a box on their boards. Once it is written it must stay there, and it can not be saved for later. This happens 16 times. When students' grids are full, they must find the score of each row and column on their boards.

SCORING

A student scores if two identical numbers are adjacent in the row or column. The score is based on the sum of the adjacent numbers. For instance, having adjacent fours would result in a score of eight. Having three sevens in a row would result in a score of 21.

If a single row or column contains a pair of adjacent fives and a pair of adjacent threes, the score for that row or column would be 16. When they have found the sum for every row and column, they add up all of these values for their grand total. The goal is to end with the largest total sum.

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Four by Four

Credit: Nat Banting & Bailee Yaganiski

TEACHER INSTRUCTIONS

Min + Max (imize)

MATERIALS:
- 1 die per group

GAME PLAY

In (Min + Max) imize the teacher plays alongside the students on their own board or on the front whiteboard. The students' goal is to achieve a higher (or lower, depending on the rules set out at the start of the game) score than the teacher's. Start by having each student copy the structure for the round. Make clear the number of times the die will be rolled (depending on the number of boxes uses). Roll the die and call out the number displayed. Students must write their number in one of the blank spaces on their grid. Once it is written it can not be moved.

Do the same on your board and then continue this process until all spaces on the grid are filled in. Students will need to decide on the most beneficial location for each number as it is rolled depending on the goal of each round.

SCORING

When the spaces are full, they must carry out the indicated operations to find their total. Those who beat the teacher's answer win the round and can add a point to their total score. To introduce the process of gameplay, it is a good idea to play a round focused on place value first. Have students create four boxes; each box represents a digit in a four-digit number.

Roll the die and have them choose which place value to put it in with the goal of creating the largest possible number. This allows them to acclimatize to how the rounds work as well as initiate conversations on place value.

Credit: Nat Banting & Bailee Yaganiski

STUDENT INSTRUCTIONS

Min + Max (imize)

MATERIALS:
- 1 die per group

GAME PLAY

In groups of 2–3, decide on which playing board you will use. The goal is the be the student in the group with the highest (or lowest if you decide beforehand) score.

Have one person roll the die and all students write down that number in one of the blank spaces on their grid. Once it is written, you can not move it.

Continue until all of the spaces on the grid are filled in.

SCORING

When the spaces are full, you must carry out the indicated operations to find your total. The player in your group with the highest score (or lowest) earn a point for that round. Choose another board, and play again!

Sample Board: decide which 3 operators to place between the boxes.

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Min + Max (imize)

□ x □ + □ x □

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Min + Max (imize)

□ + □ x □ - □

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Min + Max (imize)

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Min + Max (imize)

Credit: Nat Banting & Bailee Yaganiski

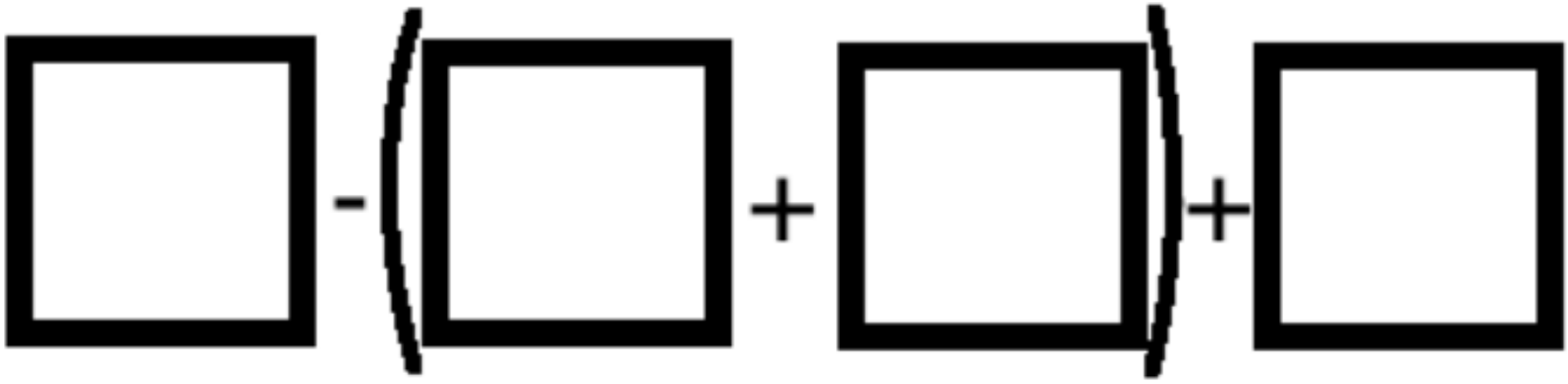
GAME BOARD

Min + Max (imize)

Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

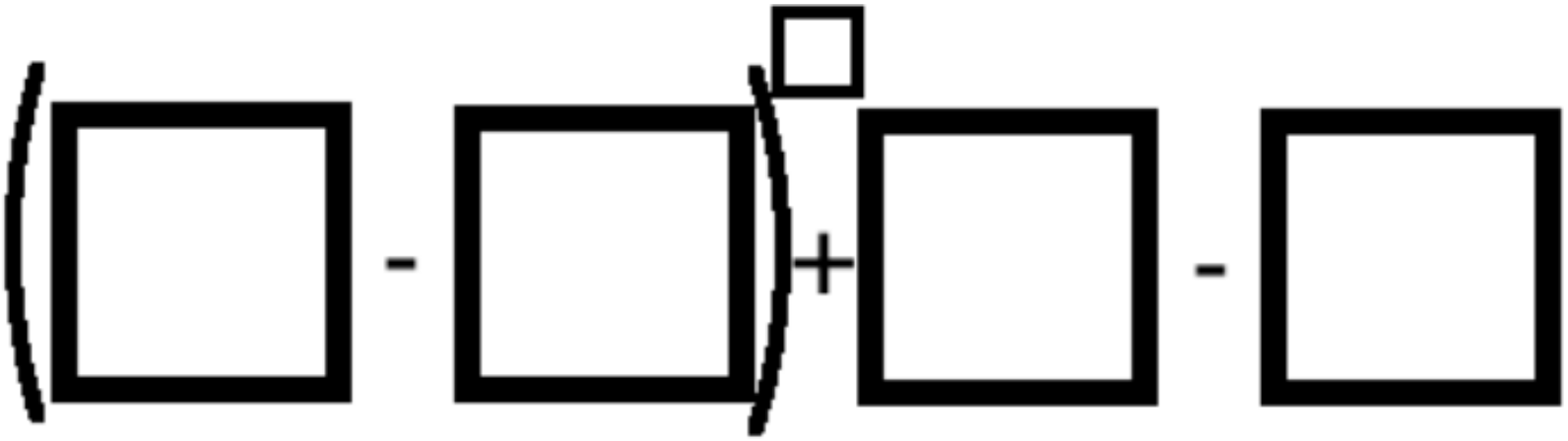
Min + Max (imize)



Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

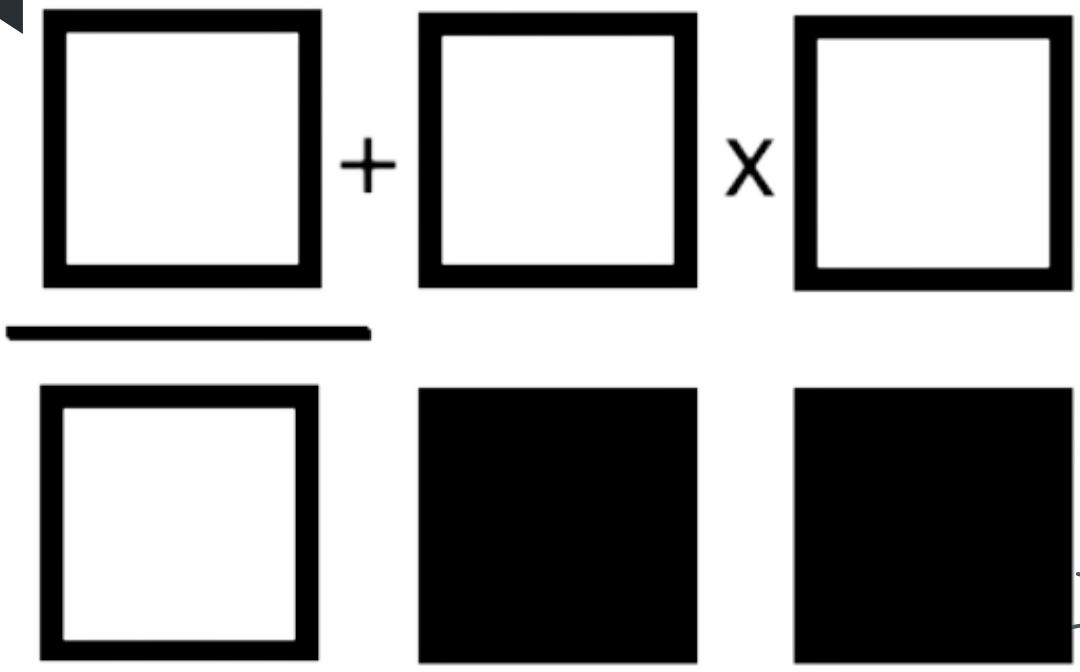
Min + Max (imize)



Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

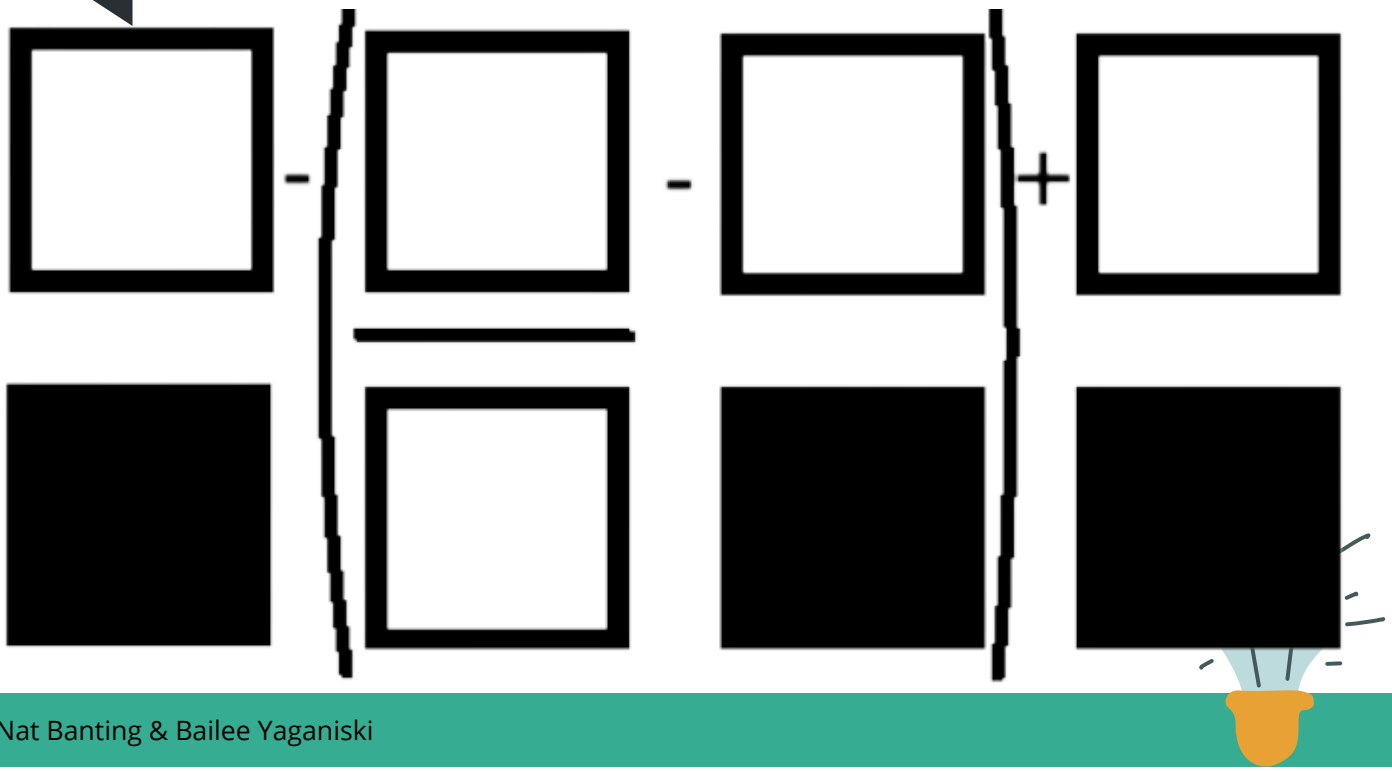
Min + Max (imize)



Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

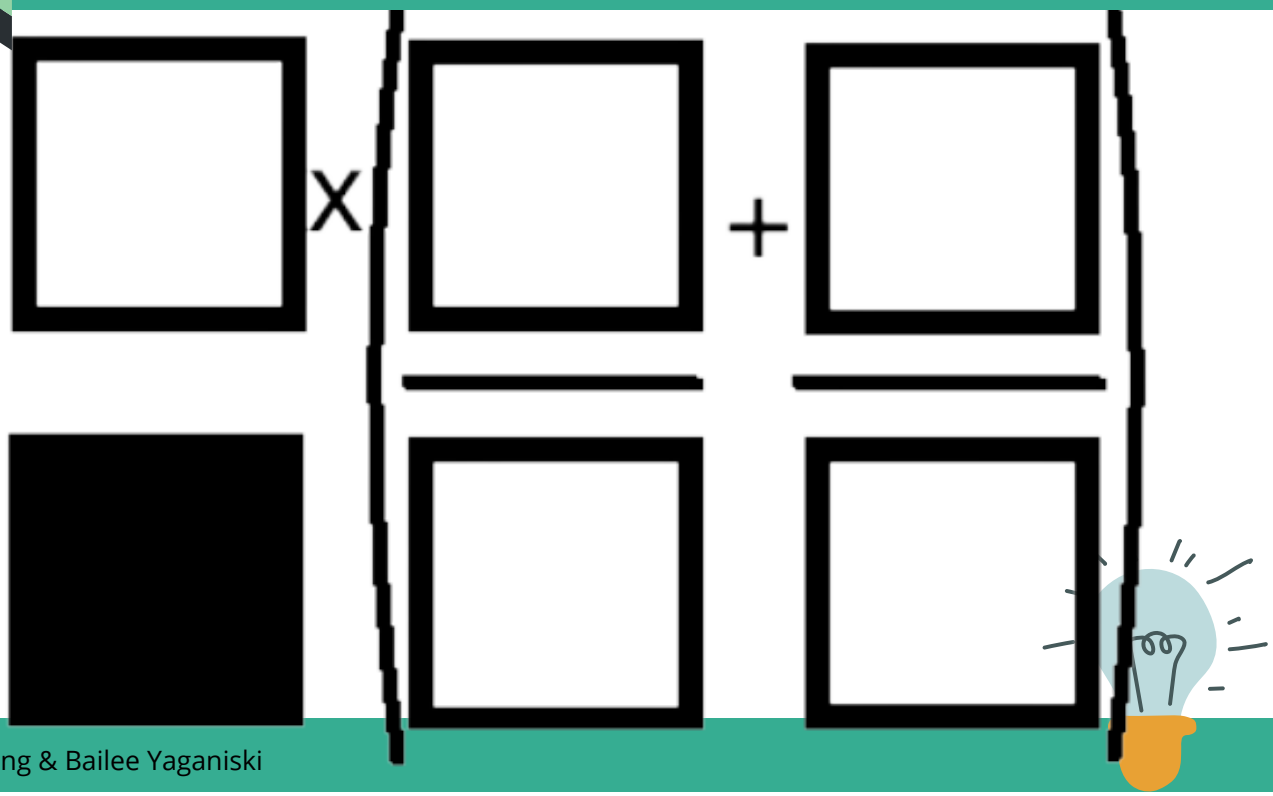
Min + Max (imize)



Credit: Nat Banting & Bailee Yaganiski

GAME BOARD

Min + Max (imize)



Credit: Nat Banting & Bailee Yaganiski

TEACHER INSTRUCTIONS

100 and Out

MATERIALS:
- 100 chart
- pencils

GAME PLAY

In groups of two, students take turns rolling two dice, and they can either add, subtract, multiply or divide their two dice values together.

They put their marker on that number on the chart. For the rest of their turns, the players determine the sum, difference, product or quotient. This number is then added to the number under their marker and the marker is moved to this sum.

Play ends when one player reaches one hundred. If a player rolls and computes a number that goes over 100, they must make a calculation that would go backwards.

STUDENT INSTRUCTIONS

100 and Out

MATERIALS:
- 100 chart
- pencils

GAME PLAY

With a partner, take turns rolling two dice. You can either add, subtract, multiply or divide your dice. The goal is to reach 100.

Put your marker on the number that you get and after each turn, calculate where you are on the 100 chart based on the number you get.

Play ends when one of you reaches 100. You must get **exactly** 100, so if you calculation puts you over, you must go **backwards** that amount.

GAME BOARD

100 and Out

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

TEACHER INSTRUCTIONS

Math War

MATERIALS:
- deck of cards

GAME PLAY

Players divide cards evenly between themselves.

- Each player turns over two cards and adds them together. The highest sum gets all the cards.
- In the event of a tie (i.e., each player has the same sum), WAR is declared –> Each player turns over two more cards. These two cards are added together. The highest sum wins all the cards (including the original cards from where you went to war).
- Play continues until one player has collected all the cards.

Card value are their face value, A=1, K=13, Q=12, J=11

Variation: instead of adding the two cards together, try multiplying!

STUDENT INSTRUCTIONS

Math War

MATERIALS:
- deck of cards

GAME PLAY

With a partner, divide the cards evenly between you.

- You each flip up two cards from your decks and find the sum. If you have a higher number, you take all of the cards and add them to your deck.
- If you tie (both have the same total), WAR is declared. –> Each player turns over two more cards.
- Example: Player 1: 2 + 3 = 5 Player 2: 4 + 1 = 5
- War is declared! Place 2 cards face down. Flip them and the highest total wins!
- Play continues until one player has collected all the cards.

Card value are their face value, A=1, K=13, Q=12, J=11

STUDENT INSTRUCTIONS

TAXMAN PROBLEM

MATERIALS:
- pencil

GAME PLAY

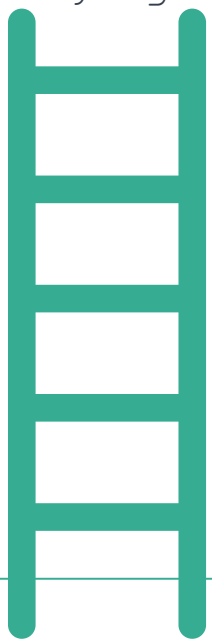
With a partner, decide on number limit (12, 18, 24, etc.) and write them in a grid. These numbers represent thousands of dollars. Decide on who will play the Taxman and who will play Average Alex.

Average Alex starts the play by choosing a number from the grid (each number chosen is crossed off and can't be used again).

There are 3 rules:

- The Taxman takes all the factors of the number you choose
- The Taxman always gets paid, so you can't pick a number that has no factors remaining
- The Taxman gets all of the remaining numbers.

Can you beat the Taxman? When there are no more numbers that can be chosen, total up what each player took for profit and try again!



1	2	3	4
5	6	7	8
9	10	11	12

Taxman	Average Alex

TEACHER INSTRUCTIONS

LIMBO

MATERIALS:
- pencil

GAME PLAY

The game of Limbo is designed to practice integer addition and subtraction. The boxes need to be filled with integers so that the totals of the rows and the columns is as low as possible. The key to the game is understanding where to place the integers so that they work in the desired direction. You can play as a whole class or in pairs.

After the students add up the four rows and four columns, their final score is the sum of these eight results. The addition and subtraction signs are placed between the cells. A list of numbers is provided with each grid or teachers can you the blank grid to assign their own numbers.

STUDENT INSTRUCTIONS

LIMBO

MATERIALS:
- pencil

GAME PLAY

With a partner, choose a Limbo board so that you each have your own copy of the same board. Using the numbers provided, place the numbers in the 16 boxes so that every box is filled.

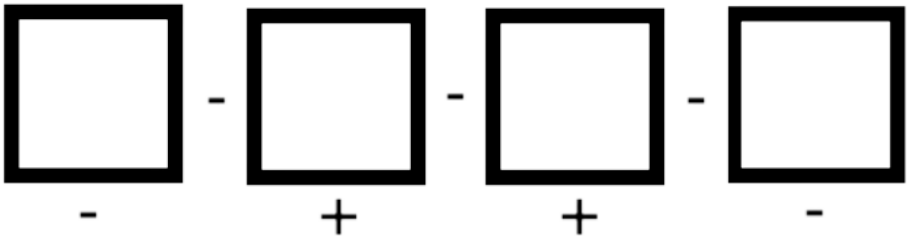
The goal is for your score in each row and column to be as low as possible.

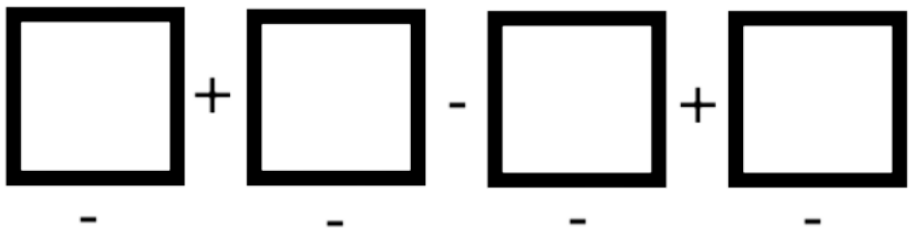
Once you have all of your numbers placed, calculate the total for each row and column and then find the total of those 8 numbers.

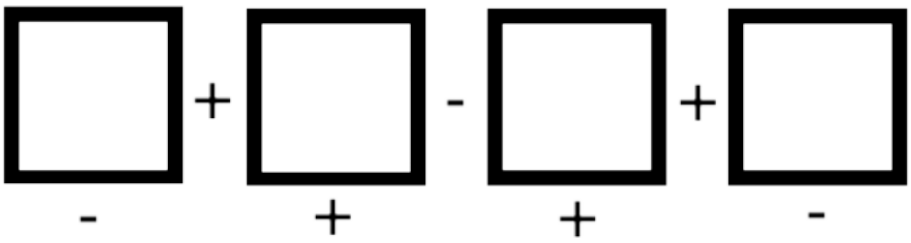
The winner is the partner with the lowest score.

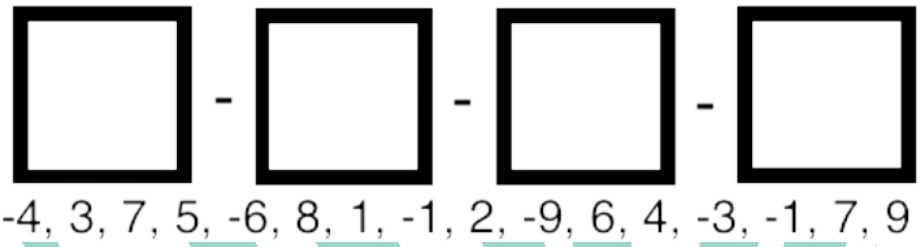
GAME BOARD

LIMBO





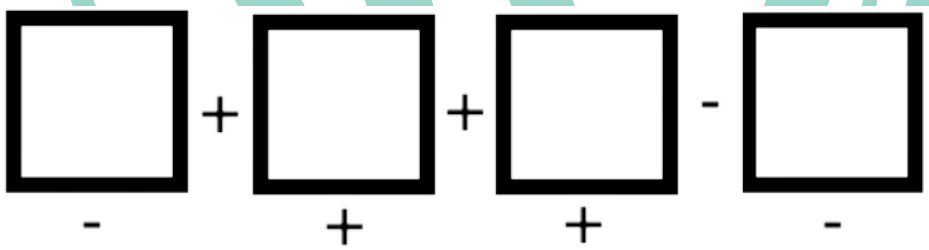


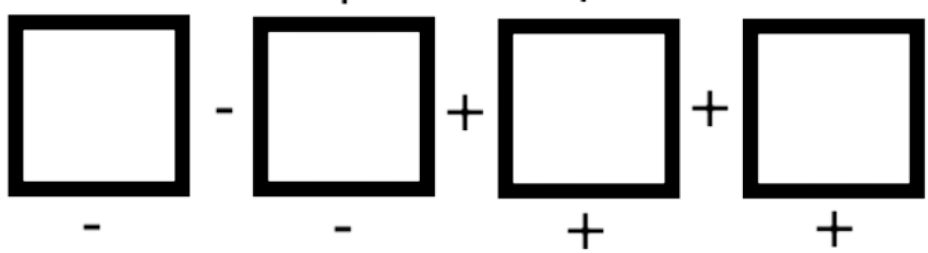


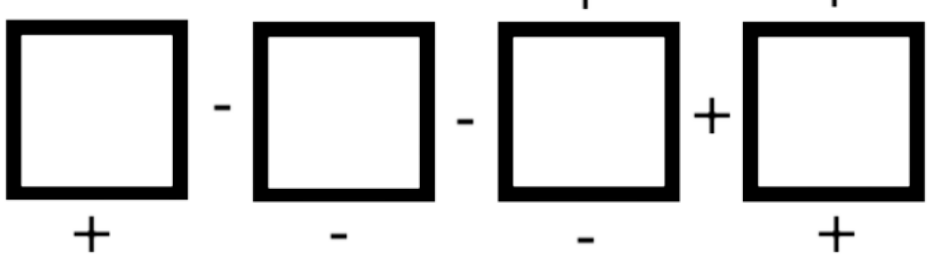
-4, 3, 7, 5, -6, 8, 1, -1, 2, -9, 6, 4, -3, -1, 7, 9

GAME BOARD

LIMBO



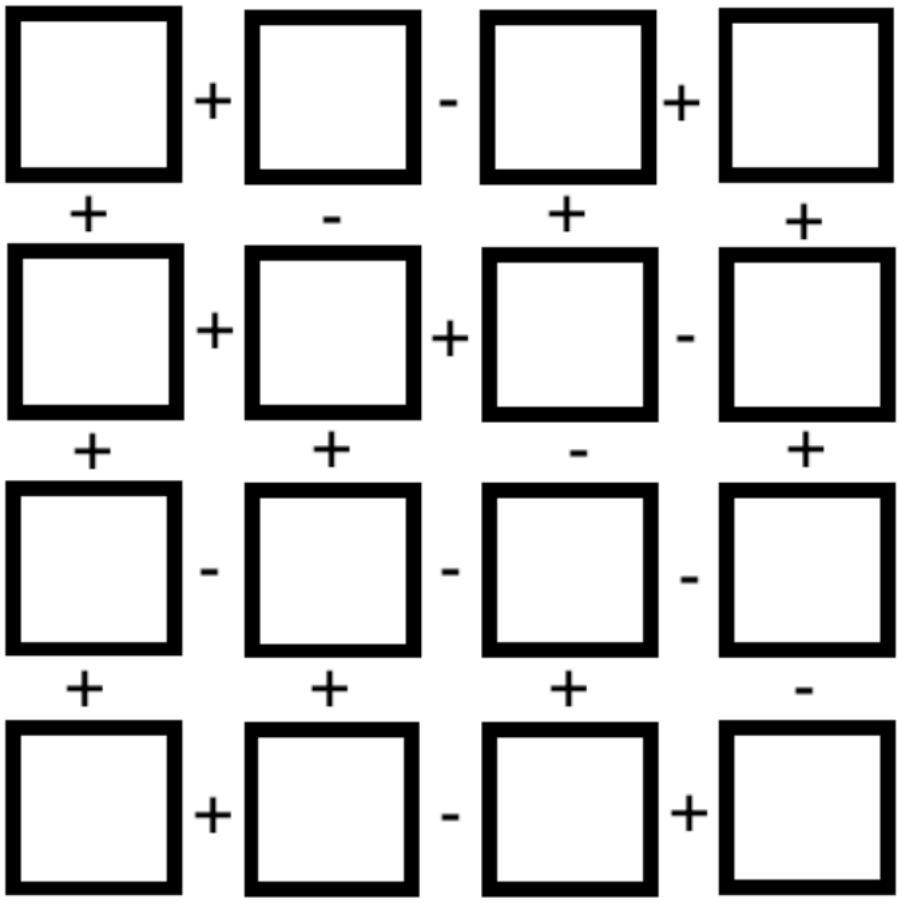




-2, 8, 4, -7, 5, 4, -1, 9, -8, 5, -3, 1, 2, 7, 6, 0

GAME BOARD

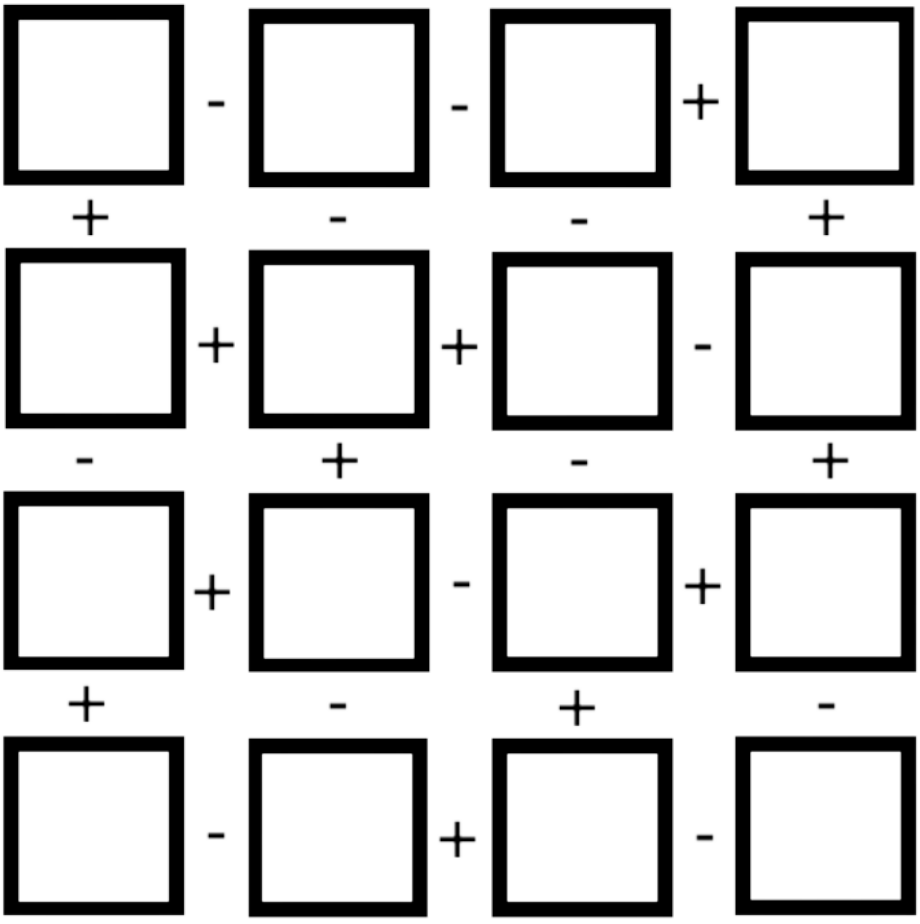
LIMBO



-4, -8, 5, -3, -5, 2, 7, 9, -6, -3, -1, 0, 6, -9, -2, 1

GAME BOARD

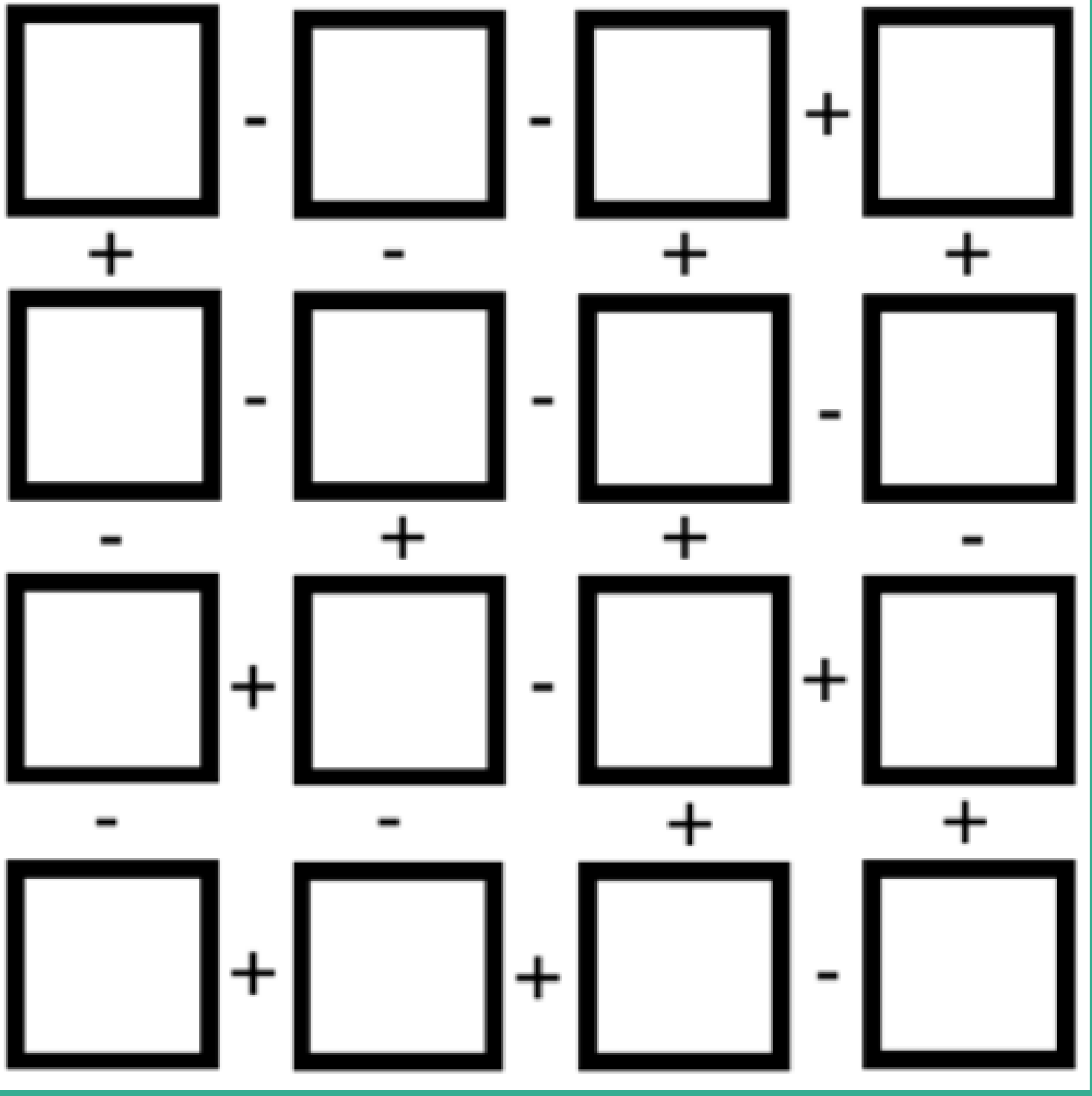
LIMBO



2, 3, 6, 9, 5, 1, 2, 4, 5, 8, 8, 3, 7, 2, 6, 4

GAME BOARD

LIMBO (blank)



Choose16 numbers to put in the boxes:

TEACHER INSTRUCTIONS

HOW CLOSE TO 100

MATERIALS:
- 2 dice per group
- pencils

GAME PLAY

This game is played in partners. Two children share a blank 100 grid. The first partner rolls two dice.

The numbers that come up are the numbers the they use to make an array on the 100 grid. They can put the array anywhere on the grid, but the goal is to fill up the grid to get it as full as possible.

After the player draws the array on the grid, she writes in the number sentence that describes the grid.

The second player then rolls the dice, draws the number grid in a different color and records their number sentence.

The game ends when both players have rolled the dice and cannot put any more arrays on the grid.

How close to 100 can you get?

Winner: whoever fills up the largest total area.

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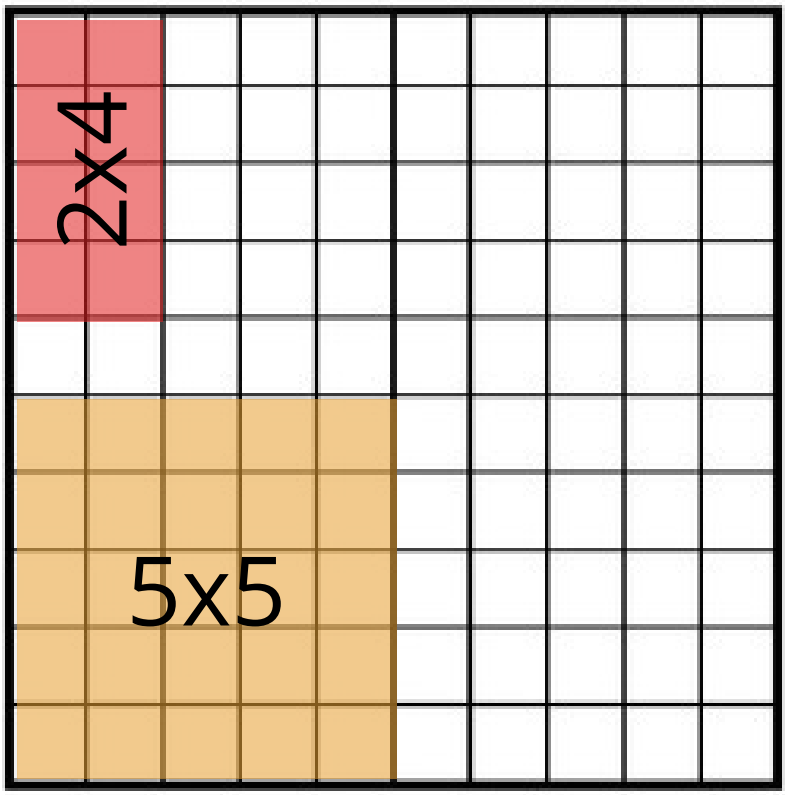
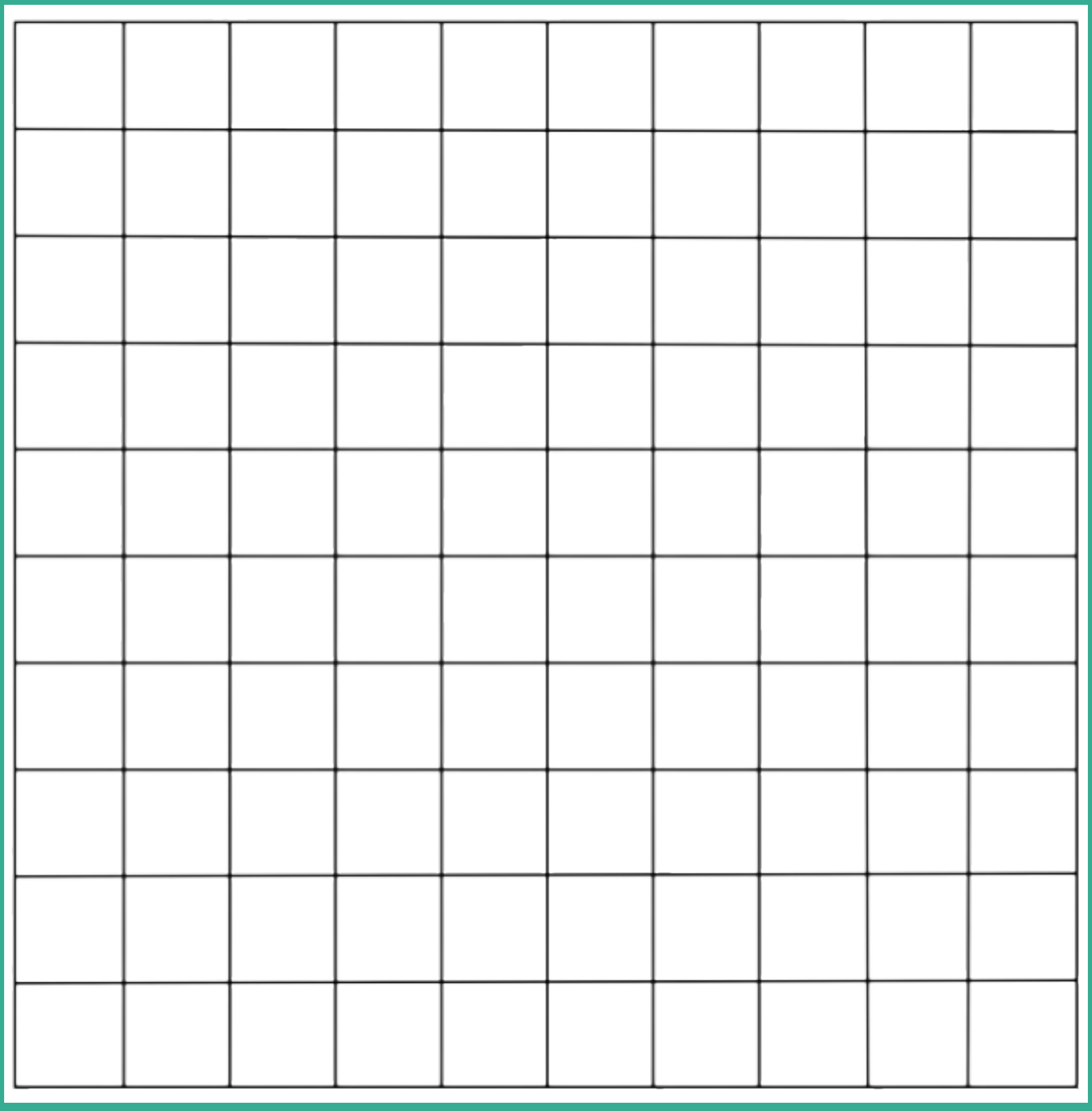


GAME BOARD

HOW CLOSE TO 100



Variation: use graph paper and 10 sided dice to increase the challenge.

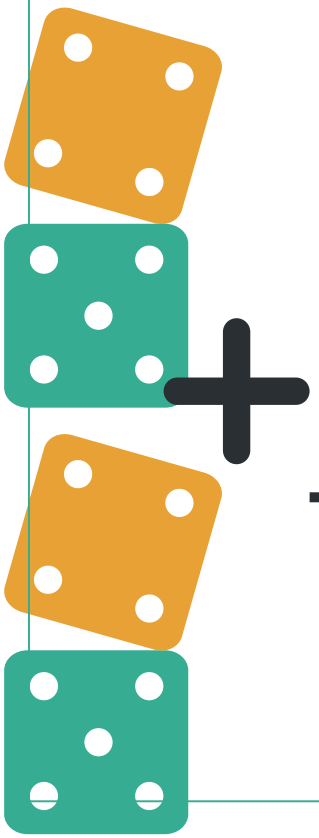
STUDENT INSTRUCTIONS GAME BOARD

BEAT THAT

MATERIALS:
- 2 dice per group
- pencils

GAME PLAY

1. In partners, each player needs their own board. Youngest goes first!
2. Roll the die and place your number in one of the boxes above the line on your playing board. Then, the second player rolls the dice to place their own number.
3. Take turns until you have a number placed in all of the boxes above the line. You can not move a number after you have placed it.
4. Add your two numbers together and the person with the largest number wins!



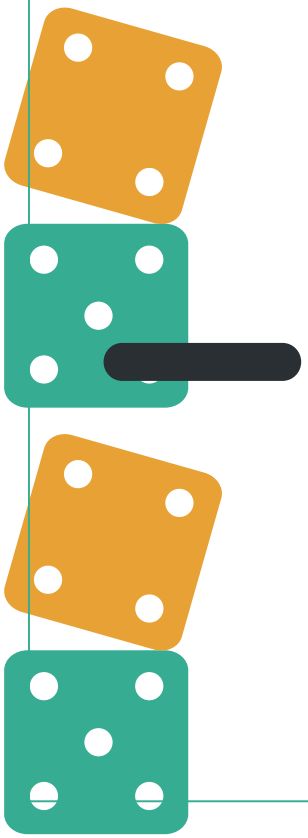
STUDENT INSTRUCTIONS
GAME BOARD

BEAT THAT

MATERIALS:
- 2 dice per group
- pencils

GAME PLAY

1. In partners, each player needs their own board. Youngest goes first!
2. Roll the die and place your number in one of the boxes above the line on your playing board. Then, the second player rolls the dice to place their own number.
3. Take turns until you have a number placed in all of the boxes above the line. You can not move a number after you have placed it.
4. Subtract your two numbers and the person with the smallest number wins!



STUDENT INSTRUCTIONS

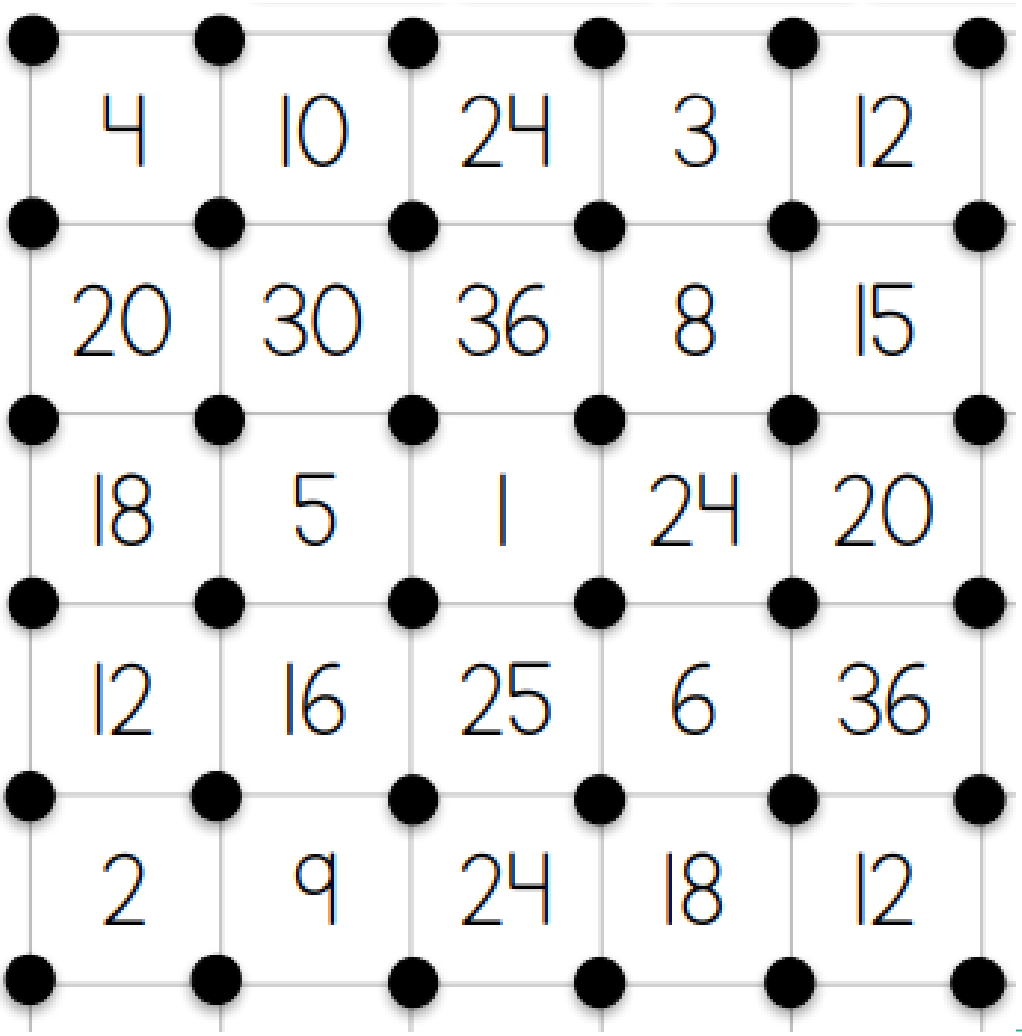
Multiplication SQUARES

MATERIALS:
- 2 colored markers
- 2 dice

GAME PLAY

1. In partners, grab two dice and a different colored marker for each player.
2. During a player's turn, they roll both dice and multiply the two numbers. The player looks for the product on the board and draws a line to connect any two dots that form part of the square around that product.
3. When a player draws a line that closes a square, that player gets to color in the square with their marker. That player rolls the dice again and takes another turn.
4. When all of the dots have been connected, the player with the most squares colored in wins!

Small Sized Board



GAME BOARD

Multiplication SQUARES

Medium Sized Board

4	10	24	3	12	4	25	2
20	30	36	8	15	5	18	30
18	5	1	24	20	25	6	1
12	16	25	6	36	3	36	5
2	9	24	18	12	8	10	4
5	15	4	30	6	24	12	2
8	20	36	5	15	4	30	1
24	6	20	2	18	25	15	6

GAME BOARD

Multiplication SQUARES

Large Sized Board

4	10	24	3	12	4	25	2	15	20
20	30	36	8	15	5	18	30	12	9
18	5	1	24	20	25	6	1	24	8
12	16	25	6	36	3	36	5	4	24
2	9	24	18	12	8	10	4	15	12
5	15	4	30	6	24	12	2	18	3
8	20	36	5	15	4	30	1	3	12
24	6	20	2	18	25	15	6	20	10
3	30	10	30	15	9	6	5	18	4
12	5	16	24	8	3	30	12	10	16

STUDENT INSTRUCTIONS

ALL LINED UP!

MATERIALS:
- 2 dice per group
- pencils

GAME PLAY

Goal: To be the first player to cross out four numbers down or three numbers across.

Each time you throw the dice, cross out a number or numbers on the score card:

How to Cross Out Numbers:

1) You may cross out the total you throw. If you throw a 4 and a 3, you may cross out the 7.

2) You may cross out two or more numbers that equal the total you throw. If you throw a 5 and a 2, you may cross out 6 and 1; or 5 and 2; or 4 and 3; or 1, 2, and 4--all equaling a total of 7.

If a player cannot cross out a number on their throw because the number has already been crossed out, the dice are passed to the next player. The player does not cross out any numbers on that turn.

Winning and Scoring: It doesn't matter who crossed the numbers out, the winner is the player who crosses out three numbers across or four numbers down first. The player who wins scores zero. The other players score is the total of the numbers not crossed out. Play five rounds. The player with the lowest total score is the overall winner.

GAME BOARD

ALL LINED UP!

ROUND 1

1	5	9
2	6	10
3	7	11
4	8	12

ROUND 2

1	5	9
2	6	10
3	7	11
4	8	12

ROUND 3

1	5	9
2	6	10
3	7	11
4	8	12

ROUND 4

1	5	9
2	6	10
3	7	11
4	8	12

ROUND 5

1	5	9
2	6	10
3	7	11
4	8	12

SCORING

	P1	P2
ROUND 1		
ROUND 2		
ROUND 3		
ROUND 4		
ROUND 5		
TOTAL		

STUDENT INSTRUCTIONS GAME BOARD

BLAST OFF

MATERIALS:

- 2 dice per group
- 16 game markers (8 for each player)

GAME PLAY

1. Players 1 and 2 take turns.
2. Roll the dice. Multiply the numbers and place a marker on the product. If the other player already has a marker on that number, you may take it off and put down your own.
3. The first player to place 3 markers in a row wins.

6	3	10	5	20	24
9	10	24	20	2	15
2	16	1	15	8	6
36	8	16	4	12	18
4	12	20	5	16	25
1	25	18	24	30	10

STUDENT INSTRUCTIONS GAME BOARD

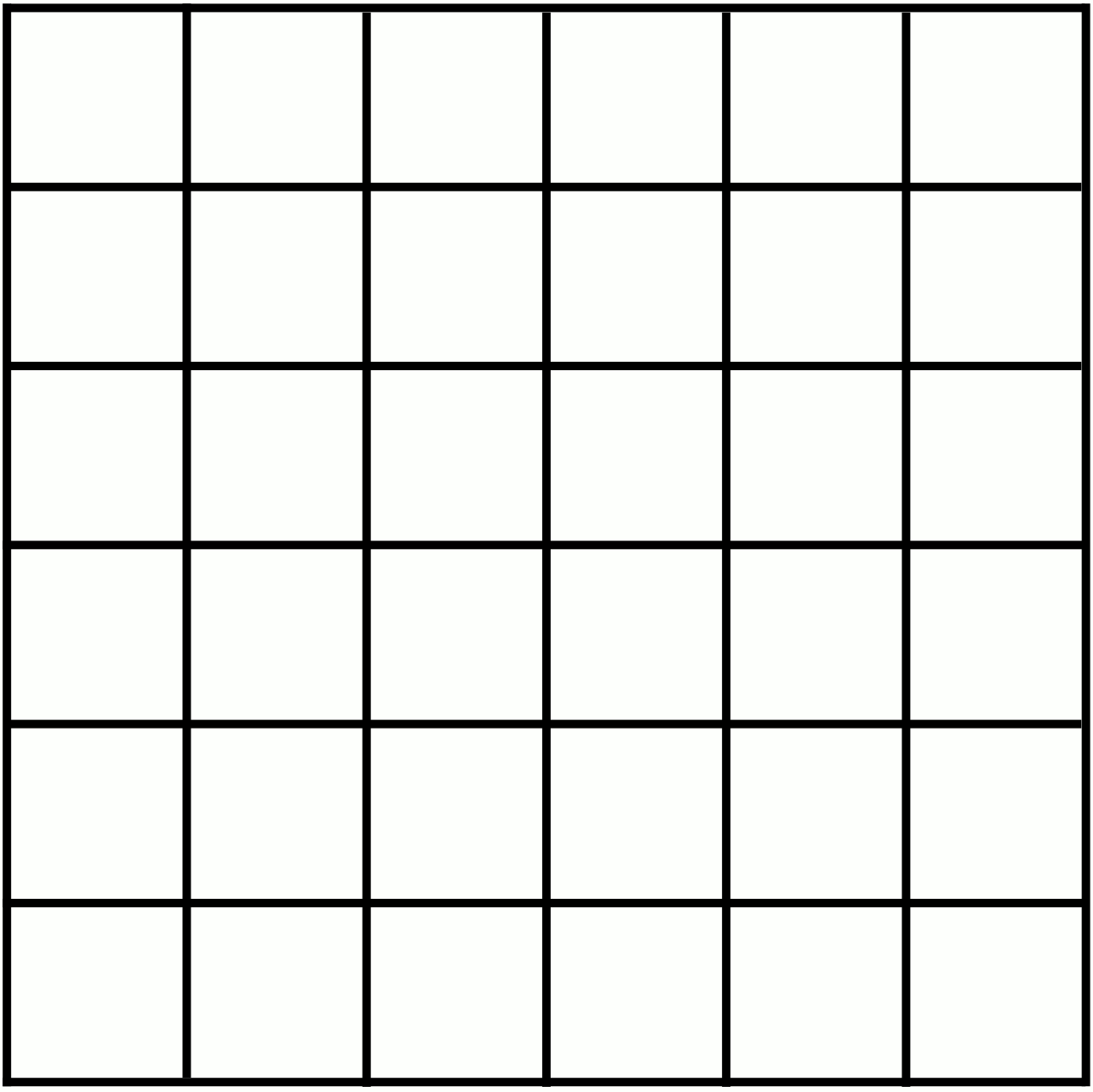
BLAST OFF | VARIATION

MATERIALS:

- 2 dice per group
- 16 game markers (8 for each player)

GAME PLAY

1. You and your partner, take turns rolling two 10-sided dice to fill in the entire board.
2. Once the board is complete, you will both, take turns rolling and marking down numbers until they have 3 in a row.



STUDENT INSTRUCTIONS

Make 20

For 2 or 3 players

MATERIALS:
- deck of cards per group

Directions

- Shuffle cards and place in a pile in the centre or spread out cards face down.
- Players take turns to pick up 3 cards.
- If a player can make the numbers on the cards total 20 in some way they get to keep the cards.

e.g. 7 + 8 + 5= 20,

e.g. 2 x 8 + 4 = 20,

e.g. 5 x 5 - 5 = 20,

- If a player can not find a way to total to 20 they return the cards to the bottom of the pile or to the centre oif cards are spread out (then mix up the cards again).
- When all cards have been taken or only a few remain, players add up the face value of the numbers on their cards. Highest score is the winner.

Variation

Make 10

- A simpler game where 3 cards are picked up each time and you see if you can make your cards total up to ten (you don't have to use all 3 cards to make 10).