

How Many More?

Topic: Subtraction Facts

Object: Cover three in a row with your markers.

Groups: Pair players

Materials for each group

- *How Many More to Make 8?* gameboard
- counters (different kind for each pair)
- Number Cube (1–6)
- paper for recording equations (optional)

Tip Substitute Dot Cubes or Dot Pattern Cards (1–6) if children are not ready for the number cube.

Directions

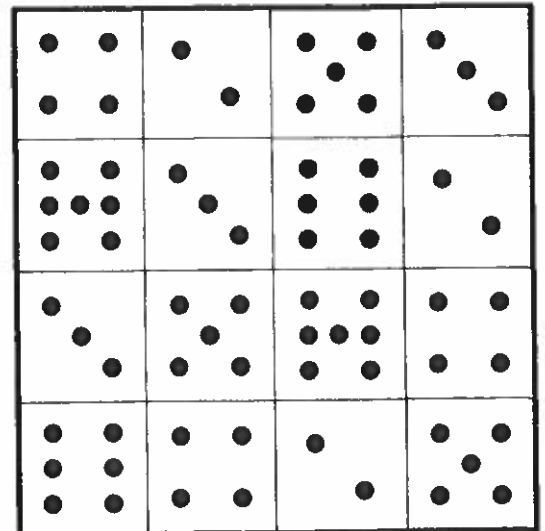
1. The first pair rolls the Number Cube to determine how many more are needed to make 8. The pair places a counter on a dot pattern that represents the missing amount.
Example: If 2 is rolled, 6 is needed to make 8. Thus, the pair selects and covers one of the six dot patterns on the gameboard.
2. Pairs are required to say aloud the related subtraction fact for each turn. (If 3 is rolled, the pair states "I have 3. I need 5 more to make 8 because 8 minus 3 equals 5.")
3. Pairs alternate turns following this procedure. The first pair to place three of their counters in a row horizontally, vertically, or diagonally wins.
4. To provide practice with 10, use the *How Many More to Make 10?* gameboard



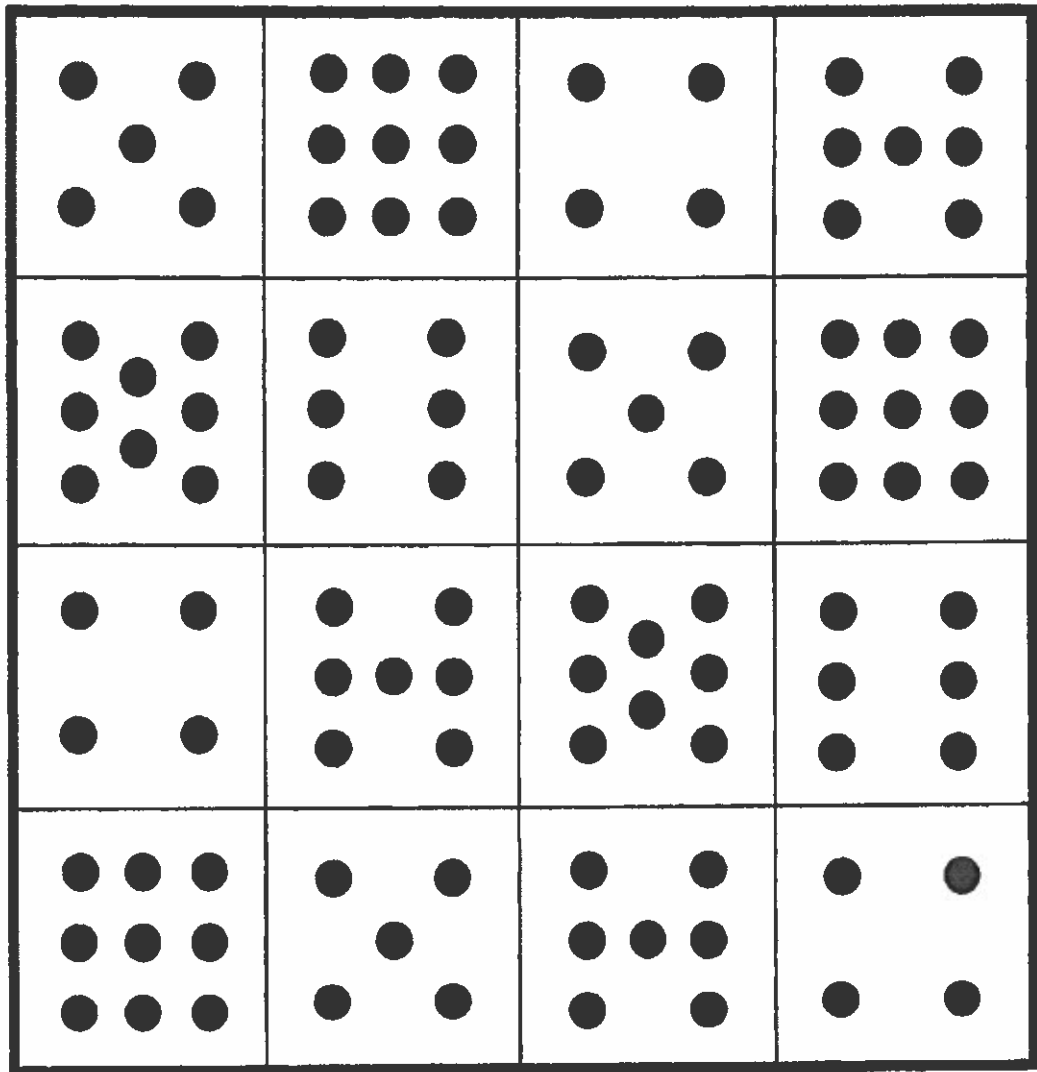
Making Connections

Promote reflection and make mathematical connections by asking:

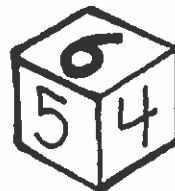
- Were some numbers easier to cover than others?
- What strategies did you use in placing your counters?
- Was it difficult to block your opponent? Why or why not?



How Many More to Make 10?

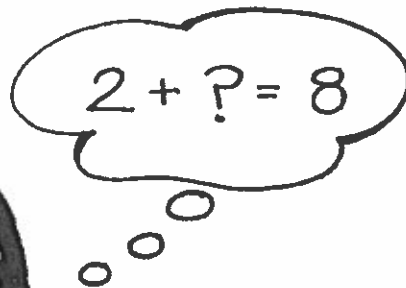


6 + ? = 10



How Many More to Make 8?

● ● ● ●	● ●	● ● ● ●	● ● ● ●
● ● ● ● ● ●	● ● ● ●	● ● ● ● ● ●	● ● ● ●
● ● ● ●	● ● ● ●	● ● ● ● ● ●	● ● ● ●
● ● ● ● ● ●	● ● ● ●	● ● ● ●	● ● ● ● ● ●



BLAST OFF!

Blast Off is a simple addition and subtraction game where the aim is to be the first person to complete your spaceship. You have to use your add and subtract skills with the numbers on the dice to find a number to cover up.

Age Range: 1st Grade +

Number of players: 1 or 2

Learning: add and subtract (also multiply and divide) with numbers up to 6

You will need:

- 2 Dice
- 9 counters per player

Instructions:

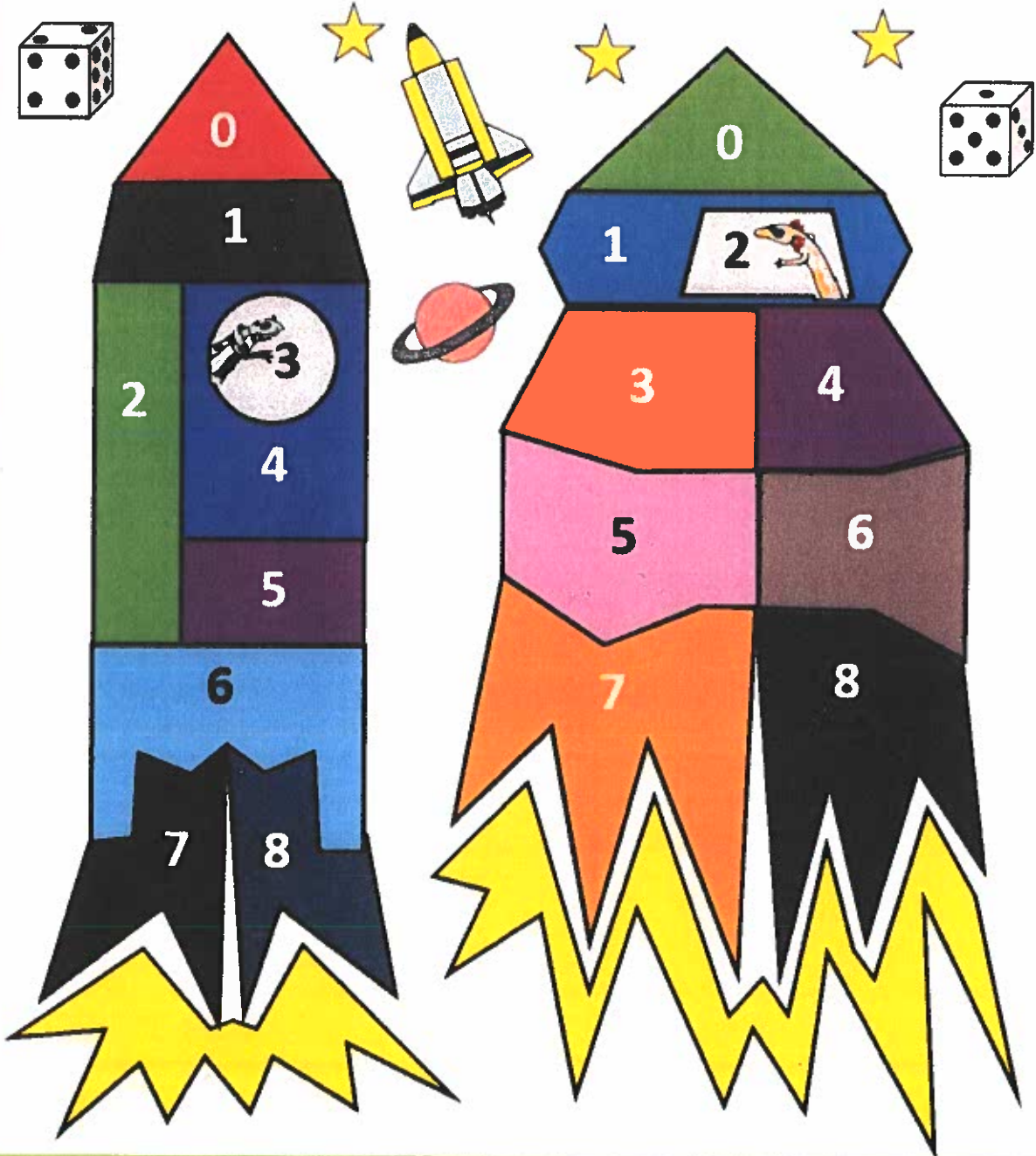
- Each player has their own space craft to fill up with a counter in each part.
- Take turns to throw the dice.
- Use the numbers on the dice and your + and - skills to make the numbers on one of the uncovered part of the space craft. For older children, multiplication and division can also be used.
- Example: if you roll a 1 and a 4, you could make 5 ($4+1$), a 3 ($4-1$), or a 4 (4×1).
- Cover the space craft part with one of your counters.
- If you can't make a number on one of the uncovered space craft parts, you give the dice to the next player.
- The game finished when one player finishes covering up their space craft, and it is ready to blast off!

Variations:

- Play the game with more players by printing off more game sheets.
- Each player can complete **any** part of **any** space craft which is unfilled. The winner is the first player to use up all their counters.

BLAST OFF!

-- WHICH SPACE CRAFT WILL BE FIRST TO LIFT OFF? --



Directions for Free the Penguins (difference of 2 dice mat)

Materials: 1 game mat, 2 dice, 4 game markers for each player

To Play: Each player places his/her markers on blocks of ice. Each player may choose up to 4 spaces or double up and place more than 1 penguin on a space. Each player takes turns rolling the dice, subtracting and if one of his/her "penguin(s)" occupies that space, it is set free. Play continues until someone sets all penguins free.

Directions for Free the Penguins (Sum of 2 dice mat)

Materials: 1 game mat, 2 dice, 6 game markers for each player

To Play: Each player gets 6 markers (PENGUINS) and places the penguins on different ice blocks. Players take turns rolling the dice, finding the sum and "freeing" any of the penguins occupying that space. Winner is the first player to free all penguins.

****Differentiation:** Roll 3 dice and use more than one operation. (example: player rolls a 6, 4, 3. Player may compute $6+4-3=7$ and free his/her penguins on space 7. Or, player may compute $4+3-6=1$, $6+3-4=5$.)



Free the Penguins

Sum of Two Dice Mat



2	3	4	5
6	7	8	
9	10	11	12

Directions for Cross Out Singles

Cross Out Singles exercises students' reasoning skills by featuring probability. This game is ideal for small groups or pairs of students.

WHAT YOU'LL NEED:

- 1 six-sided die per group
- 1 game board for every student
- 1 pencil per student
- The game board is simply a grid that consists of nine squares arranged in a three-square by three-square format. On the ends of each row, column and diagonal, there should be a circle, totaling seven circles in all. Next, students must add the numbers in each row, column and diagonal, marking the sum in the provided circle. Once they have all their sums, students can cross out any sum that doesn't show up again. For instance, if their circles contained 3, 5, 7, 5, 7, 4 and 4, students will cross off 3. Then, they'll add up the remaining numbers and the final sum is their score for that round. *How to play:* One student in the group or pair will roll a die. The others should record the number their peer rolled in a box of their choosing. Have students take turns rolling and continue to record the numbers until their game board is full. Highest score wins the round.

Name _____

1

Cross Out Singles Recording Sheet

			○
			○
			○
○	○	○	○

total _____

2

			○
			○
			○
○	○	○	○

total _____

Target 300

You need:

- a partner
- 1 die

Rules

The object of the game is to be the player whose total is closest to 300 after six rolls of the die. This means that the total can be exactly 300, less than 300, or greater than 300. Each player must use all six turns.

1. Each player draws a two-column chart on a recording sheet as shown, one column for each player.
2. Player 1 rolls the die and decides whether to multiply the number rolled by 10, 20, 30, 40, or 50, keeping in mind that each player will have six turns and the target amount is 300.
3. Both players write the multiplication sentence representing the first player's choice and product. For example, Player 1 rolls a 2 and multiplies it by 20, and both players write the multiplication sentence $2 \times 20 = 40$.
4. Player 1 hands the die to Player 2 and Player 2 follows the same steps as Player 1.
5. At the end of each turn, the player adds his new amount to his previous score to keep a running total.
6. At the end of six turns, players compare scores to see whose score is closest to 300 and record underneath the chart:

Player 1	Player 2

Player 1	Player 2
$2 \times 20 = 40$	

_____ won.

_____ was _____ points away from 300.

_____ was _____ points away from 300.

OH NO, 99!

YOU WILL NEED:

a partner

a deck of playing cards (jokers removed)

THE OBJECT OF THE GAME IS:

to force your partner to go over the score of 99

DIRECTIONS:

1. In this game:

Aces = 1

Jacks = minus 10

Queens = a wild card (a wild card can represent any card in the deck)

Kings = zero

All other cards = their face value (2-10)

2. One player shuffles the cards and deals four cards to each player. The remaining cards remain in a stack face down.

3. Players take turns, playing one of their cards, adding or subtracting the value of their card to or from the accumulating score.

4. Each time a player plays a card, he or she must pick a card from the stack.

5. Play continues until one player forces his or her partner to go over the score of 99.

Speedway 500

You need:

Game board

Spinner or paper clip

Game pieces for players to move around the board

Number of players: 2 - 4

To Play:

Players spin to determine who goes first.

Players take turns spinning and moving that number of spaces on board. Players collect or lose points based on where they land. Players keep track of points on recording sheet. First player to pass 500 points wins the game.

Speedway 500 Game Board

START
If you were first out of the line, COLLECT ONE HUNDRED!

COLLECT 87 for strolling on the pole position.

PICK UP →

You passed 2 cars. COLLECT THREE TENS!

The car is handling great. GET 143!

You got a flat. LOSE ONE TURN!

PICK UP →

LOSE 62 for driving on the apron.

Do you have 500 or more? IF SO, YOU WIN!

Pass in the last curve. COLLECT 19 TENS!

You've picked up speed in the straightaway. COLLECT TEN ONES

SPEEDWAY 500

PIT STOP

You are out of gas. LOSE A TURN!

One lap to go. GET 56!

You avoid a wreck. COLLECT TWELVE TENS

PICK UP →

LOSE →

COLLECT THIRTY-TWO for finding a fast groove.

COLLECT 46 and take an extra turn.

LOSE ONE TURN! Black flag for speeding on Pit Road.

LOSE →

GET FIFTY-THREE for drafting through the corner.

Multiple Madness

Building Fluency: multiply within 100

Materials: gameboard, 8 game markers – different color for each player, 2 paperclips

Number of Players: 2

Directions:

1. The first player places the two paperclips on any factors at the bottom of the page. Both paperclips may be on the same factor.
2. The player covers the product of the two factors with a game marker.
3. The second player moves one of the paperclips then places a game marker on the new product.
4. Players alternate moving a paperclip and marking a product.
5. The winner is the first to cover four products in a row.

Variation/Extension: Multiple Madness II is a variation

1	2	3	4	5	6
8	9	10	12	15	16
20	25	1	2	3	4
5	6	8	9	10	12
15	16	20	25	1	2
3	4	5	6	8	10

FACTORS: 1 2 3 4 5

Multiple Madness II

Building Fluency: products of whole numbers

Materials: gameboard, 8 game markers – different color for each player, 2 paperclips

Number of Players: 2

Directions:

1. The first player places the two paperclips on any factors at the bottom of the page. Both paperclips may be on the same factor.
2. The player covers the product of the two factors with a game marker.
3. The second player moves one of the paperclips and places a game marker on the new product.
4. Players alternate moving a paperclip and marking a product.
5. The winner is the first to cover four products in a row.

Variation/Extension: Multiple Madness is a variation

1	2	3	4	5	6
7	8	9	10	12	14
15	16	18	20	21	24
25	27	28	30	32	35
36	40	42	45	48	49
54	56	63	64	72	81

FACTORS: 1 2 3 4 5 6 7 8 9

Fraction Tic-Tac-Toe

Topic: Adding Fractions

Object: Cover three-in-a-row that add to the indicated sum.

Groups: Pair players or 2 players

Materials

- Fraction Tic-Tac-Toe gameboard
- transparent markers (2 colors)

Directions

1. After the group selects the *Make 1* or *Make $1\frac{1}{4}$* playing grid, the first pair covers a fraction cell with one of the colored markers.
2. Then the second pair covers a fraction cell with a marker of the other color.
3. Pairs alternate turns covering cells, trying to cover three fractions in a row for the specified total.
4. The winner is the first pair to cover three fractions in a row that equal 1, or $1\frac{1}{4}$, depending upon the selected gameboard.

Making Connections

Promote reflection and make mathematical connections by asking:

- What strategies helped you make a successful Tic-Tac-Toe?
- Which playing grid is more difficult? Why?

Tip Players may select the harder **Make $1\frac{1}{4}$** gameboard when they consistently win or seem ready for a challenge.

Fraction Tic-Tac-Toe

Game # 1

Make 1

$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{2}{8}$
$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{8}$
$\frac{5}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{5}{8}$
$\frac{2}{8}$	$\frac{1}{8}$	$\frac{5}{8}$	$\frac{1}{4}$



Make $1\frac{1}{4}$

Game # 2

$\frac{2}{8}$	$\frac{2}{8}$	$\frac{3}{4}$	$\frac{2}{4}$
$\frac{1}{4}$	$\frac{3}{6}$	$\frac{2}{4}$	$\frac{2}{8}$
$\frac{3}{4}$	$\frac{1}{2}$	$\frac{2}{8}$	$\frac{1}{2}$
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{4}{8}$	$\frac{1}{4}$

$\frac{2}{4} + \frac{2}{8} + ? = 1\frac{1}{4}$



15 $\frac{1}{2}$

Topic: Adding Mixed Numbers

Object: Create an exact sum of $15\frac{1}{2}$ or a sum of 25 or higher.

Groups: Pair players or 2 players

Materials

- one displayed copy of Choices
- scratch paper and pencils

CHOICES			
1	2	3	4
$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	

Directions

1. Each pair records the choices on scratch paper.
2. The first pair creates a mixed number by selecting a whole number and a fraction from the choice box. Then the pair states the resulting mixed number.
3. The next pair creates a second mixed number in the same way and adds the two mixed numbers. Then that pair states the accumulated total.

(All numbers in the choices box are available for each turn.)

4. Pairs continue alternating turns and adding newly formed mixed numbers to the previous pair's total.
5. A pair can win in two ways:
 - ... by totaling exactly $15\frac{1}{2}$ at the end of a turn, or
 - ... by totaling 25 or more at the end of a turn.

Making Connections

Promote reflection and make mathematical connections by asking:

- At what point did you know you had won or lost?
- Does it make a difference who goes first?
- Is it easier to make exactly $15\frac{1}{2}$ or go to 25?

Tip When appropriate, increase difficulty by adding $\frac{1}{8}$ and $\frac{7}{8}$ as choices.