

Close the Grid

The purpose of this activity is for educators to playfully use number composition and decomposition. This game is similar to a game called Shut the Box.

Key Concepts

- Add and subtract numbers.
- Recognize different ways to compose and decompose numbers.

Materials and Setup

- Close the Grid gameboard (see below)
 - Small items to use to cover boxes on the gameboard (for example, squares of paper or counting chips)
 - Small items to use to support composing and decomposing (for example, bead or base ten blocks)
 - Pairs of dice for each group
-  15–30 minutes
-  Small groups, pairs
-  In-person professional learning

Activity Instructions

Play Close the Grid with any number of players (most enjoyable with two to four players).

- During the game, each player has a turn to roll the dice and try to cover as many numbers as possible on the gameboard by composing and decomposing the numbers rolled on the dice.
- Decide who will play first.
- Start by rolling two dice.
- Add the numbers that the dice reveal (for example, if the dice land on 2 and 6, we will add them to make 8).

- Then, cover any combination of open numbers on the gameboard that add up to the total shown on the dice.
 - ◇ For example, if the sum of the two dice is 8, the player may use small objects or tokens to cover the numbers 8; 1 and 7; 2 and 6; 3 and 5; 1, 2, and 5; or 1, 3, and 4, as long as the numbers are not already covered.
 - ◇ Ask yourself, “What are the different ways I can make 8?”
 - ◇ Consider using the objects at your table to decompose 8 into different sets.
- Roll the dice again. Calculate the sum of the numbers on the dice. Cover as many numbers on the gameboard as you can by figuring out different ways to compose the sum of the dice roll.
- If the sum of the remaining uncovered boxes is 6 or less, you may choose to roll only one die. Otherwise, you must roll both dice.
- Continue rolling the dice and covering numbers until reaching a point at which, given the results produced by the dice, you cannot cover any more numbers.
- When you cannot cover any more numbers, calculate your score by adding all of the numbers on the gameboard left uncovered. For example, if the numbers 2, 4, and 6 are not covered, the player’s score is 12 ($2 + 4 + 6 = 12$).
- Remove all of the tokens or objects from the board.
- Now, it is the next player’s turn. After every player has taken a turn, the player with the lowest score wins.

Playing Close the Grid with Children

Here are a few ideas to consider before using this game, or an adaptation of this game, with the children in your setting:

- Consider the abilities of children in your setting and whether they have sufficient prior knowledge to participate in a meaningful way (for example, have children composed and decomposed numbers in previous experiences?).
- Show children how to play the game before organizing them into pairs to play together.
- You might offer other materials to support children to compose and decompose numbers as they play the game (for example, concrete objects to move into different sets or a whiteboard and markers to draw representations of different sets).

Close the Grid Gameboard

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