

Cover the numbers!

Grade Level: 3-5 or 5-6

Number of Players: 2-6

Mathematical Understanding:

Students will need to think flexibly about numbers and operations in order to create the numbers they need to capture all of their numbered circles.

Materials Needed:

Game board, three dice, counters

Object of the Game: The first player to cover all of the number circles on their game board wins the game.

Directions:

Players each roll one die and the highest roll begins the game. Play moves clockwise.

First player rolls the three dice. They then use one or more of the numbers separately, or by adding, subtracting, dividing or multiplying them to make numbers that help them to cover their numbered circles with a two-color counter. Each die may only be used once and not all die must be used. A player may play and cover any two circles on a single turn if both of those numbers can be made without using the rolled numbers more than once.

Example: Player rolls a 2, 5, and 6. These numbers can be used as they stand or in many different combinations depending upon the operations players agreed to use at the beginning of the game.

2 & 11 (6+5)	5 & 12 (6x2)	6 & 10 (5x2)	16 ((5x2)+6)
2 & 1 (6-5)	5 & 3 (6÷2)	9 (5+6-2)	17 ((6x2)+5)
5 & 4 (6-2)	6 & 7 (5+2)	13 (2+5+6)	18 ((5-2)x6)
5 & 8 (6+2)	6 & 3 (5-2)	15 ((6÷2)x5)	2 & 5 (6 is not used)

...plus many other possible variations. Players use the numbers created to cover the number circles on their gameboard with a two-color counter (recommend yellow side up).

Blocking: a player may also choose to cover a number circle on an opponent's gameboard. Players may use one or both of the numbers made on their turn to block by placing a two-color counter on the numbered circle of an opponent's gameboard. Only empty spaces can be blocked. A player may block even if that numbered circle is not covered on their own gameboard.

To unblock a circle, a player must make that number to remove the two-color counter from their gameboard. They must make the number again to cover the number. If the number can be made twice in a single roll without using each die more than once, a player may unblock and then cover their numbered circle in a single turn.

Optional:

Players should decide at the beginning of the game which operations will be used. For example, players may choose to use only addition, subtraction, and multiplication. Or players may decide that the use of exponents is allowed. May variations are possible.

Guiding Questions:

What do you know?

Where do you think you will begin?

Where are you stuck? What is confusing? What are you wondering about?

What are you going to try?

What did you think about to come to your answer?

Differentiation:

There are two gameboards available. One includes numbers 1-16 with additional 10s. The other includes numbers 1-18.

Many variations of this game are possible by changing the operations allowed to create numbers.

Game Trajectory:

Pre K-K: Players use 1 dice to cover the numbers 1-10 on a game board.

K-2: Players use addition and subtraction on a gameboard with numbers 1-16 and more than one 10.

3-5: Gameboard includes numbers 1-18. Players use operations of addition, subtraction, and multiplication. Play may include division.

5-6: Gameboard includes numbers 1-18. Players use the operations of addition, subtraction, multiplication, and division. Play may include exponents, square roots or fractions as determined by players.

Clean up Checklist for Game Bag:

Gameboards

Two-color counters

Three dice