



ARITHMETIC - LEVEL 1: WHO'S OUT?

Materials:

Paper with Bonded Groups puzzles

Transparent counters

Target: 20

7	9	7	4
8	4	4	16
12	5	9	6
13	7	7	7

Instructions:

Find groups of two or three numbers that add up to the target number. The numbers in a group must share sides. Put counters of the same color on the numbers in the same group. When all groups have been made, there should be one square left. The challenge is to find that number.

Thoughts to take home:

Make these puzzles by starting with an empty grid and working your way around that grid filling in pairs and triples of numbers that add up to the target number.

Make the game easier or harder by making the grid smaller (3x3) or larger (5x5), or by adjusting the target number to your child's level (e.g. numbers up to 10, 20, or 100).

Can you find a shortcut for finding the single number that is left out?

ARITHMETIC – LEVEL 2: NUMBER SCRAMBLE

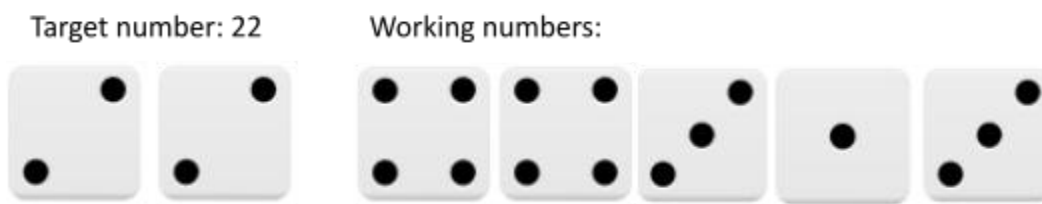
Materials:

5 dice

Paper & Pencil are optional

Instructions:

Set up: Roll two dice to create a two-digit target number. The first die will be the tens place digit and the second die will be the ones digit. Next, roll five dice to have five numbers to work with.



Play: Players use each of the five dice to make a result as close to the target number as possible. They may use addition and subtraction, and they can also use two dice together to form a two-digit number.

Scoring: For each round, your score is the difference between the number you made and the target number. You can either have a winner for each round, or you can play multiple rounds where you add up the scores over the rounds. The person with the **lowest score** wins.

Example: Use the roll pictured above. Player 1 has $4 + 4 + 3 + 1 + 3 = 15$, for a score of $22 - 15 = 7$. Player 2 has $14 + 4 + 3 + 3 = 24$, for a score of 2. Player 3 has $34 - 14 + 3 = 23$, for a score of 1. Player 3 wins!

Questions and discussion points:

Suppose the roll is: 1, 2, 5, 6, 4 and 63. A player gets close with $65 - 4 + 2 + 1 = 64$. Another one gets it exactly with $56 + 4 + 2 + 1 = 63$. A third says $52 + 6 + 4 + 1 = 63$ also works. Have a chat about why some problems have lots of equivalent solutions.

Thoughts to take home:

You can also use multiplication, or even division, if your child is comfortable with it.



ARITHMETIC – LEVEL 3: THE PRODUCT GAME

Materials:

Paper with Product Game grid

20 Counters in each of 2 colors

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

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

1	2	3	4	5	6	7	8	9
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Instructions:

Set up: Each player is given all the counters of one color.

Start: The first player puts a counter on any number from 1 to 9 in the 1-9 row. The second player puts another counter on one of the 1-9 squares (they can be on the same number) and claims the product of those 2 numbers in the 6 by 6 grid by putting their color counter on the product.

Continuing: From then on, players take turns choosing to move either of the two counters in the 1-9 row, claiming the product (if it is unclaimed) by putting their color on that product in the grid.

Winning: The first player to claim 3 squares in a row with their color wins.

Thoughts to take home:

You can make the grids larger (e.g. numbers up to 10, or 12) to include higher multiplication facts. Find these grid on our website www.earlyfamilymath.org



ARITHMETIC – LEVEL 3: MULTIPLICATION BINGO

Materials:

Multiplication Bingo Cards

Deck of playing cards using aces to 10's (aces can serve as 1's)

Counters

Instructions:

Set up: Each player randomly receives a Multiplication Bingo Card and counters (for use on their card). A deck of playing cards with the face cards removed is placed face down on the table as a draw pile.

Start: Draw two cards to put face up on the table. If either player has the product of those two numbers on their card, they put a counter on the number.

Continuing: The players take turns taking the top card from the draw pile and choosing which of the two cards to replace. All players who have the product of those two numbers on their Bingo Card may put a counter on that number.

Winning: The first player to get 5 in a row, horizontally, vertically or diagonally, wins.

Thoughts to take home:

You can play this at home and have your child choose numbers to put on a Multiplication Bingo Card. Are there any numbers that are a better choice than other numbers?

Limit the size of the numbers you use if your child is just learning the multiplication facts.

You can use 4 by 4 cards to make a shorter game.