DICE BINGO

FESTIVAL GUIDE

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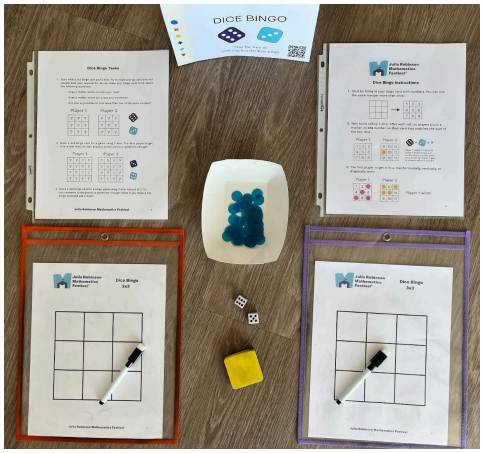
Materials and Setup

Per table (assuming 5 pairs of students per table), you will need:

Per Table	Material Preparation	
15 dice		
100 bingo chips		
3 copies of Instructions	1-page sheet	p. 6
5 copies of Tasks	1-page sheet	p. 7
10 copies of Bingo Cards	2-page sheet *can be printed double-sided*	p. 8-9
1 copy of Table Sign	1-page sheet *print on cardstock for sturdiness*	p. 10
10 dry erase plastic sleeves		
10 dry erase markers		
10 dry erase marker erasers		

Per Table	Purchasing Materials		
15 dice	pack of 50 for $8.99		
100 bingo chips	pack of 250 for 5.59		
dry erase combo	30 piece set for $22.99		Set comes with 30 plastic sleeves, 30 markers with erasers, and 4 extra erasers.
8 plastic sheet protectors	pack of 100 for $7.67	pack of 500 for $26.99	These are recommended in order to protect the documents that students will be handling.



Objective

Be the first player to get three numbers in a row on their bingo card.

Rules:
1. Write 9 numbers on the card. The same number can be used more than once.
2. Take turns rolling 2 dice. After each roll, all players place a marker on **one** number on their card that matches the sum of the two dice.
3. The first player to get 3 numbers-in-a-row horizontally, vertically, or diagonally wins!

Materials

Each Dice Bingo table should be prepped for 5 stations of two students.
Each station needs:
1. 3 dice.
2. 20 bingo chips.
3. Dice Bingo instructions.
4. Dice Bingo tasks.
5. Dice Bingo cards in dry erase plastic sleeves.
6. 1 dry erase marker and eraser.

How to Play

Introduce the activity without overexplaining it and without telling what strategies students might want to use. As much as possible, avoid giving away answers. Students should be encouraged to explore, experiment, and learn from their mistakes.

1. In pairs, have the students write 9 numbers on their card with the goal of creating a bingo card that would beat their opponent's.
2. Explain the rules and have them play one round.
3. Encourage them to play a few times, using what they've learned to draw a new card each time before moving onto the 4 x 4 card and the challenges.

Standards

1. Make sense of problems and persevere in solving them. CCSS.MP1
2. Construct viable arguments and critique the reasoning of others. CCSS.MP3
3. Model with mathematics. CCSS.MP4
4. Look for and make use of structure. CCSS.MP7

Asking Good Questions

1. Ask questions about confidence.
    a. When a student asks you “Is this right?”, instead of saying “yes” or “no” right away, ask them how confident they are in their answer. Here are some examples:
        i. “Maybe. What do you think? How confident are you?”
        ii. “On a scale of 1-5, how confident are you in your answer?”
    b. If a student is not confident in their answer, follow up by asking “What would help you feel more confident in your answer?” or “Why do you not feel confident?” This helps you determine how best to help the student through their explorations.

2. Ask students about choices.
    a. When a student is stuck or shows you a wrong answer, instead of jumping in and showing the student the correct answer, start by asking about the choices that the student made along the way. Here are some suggested steps to follow:
        i. Start from the beginning.
        ii. Ask students to show you what they’ve tried so far.
        iii. When the student gets to a point where they have different choices, ask the student “What other choices can you make here?”
        iv. Have the student make a different choice and try to solve the puzzle. This helps the student see that they have the power to make different choices during an activity, and they’ll start to do this on their own in the future.
        v. If you’re familiar with the puzzle or a particular solution, stop the student only when a different choice will help them get to the solution. This will help them feel successful faster without you giving away too much of the answer.

3. Ask students about strategies.
    a. If a student is getting into the activity and has been doing it for a while, ask the student if there are any strategies they’ve come up with to help them solve the puzzle or win the game.
    b. Follow up by asking if they think their strategies will work for all puzzles and/or larger puzzles, more complex puzzles, etc. Have the student explore more complex puzzles to test out their strategies.
    c. This is a great way to encourage a student to dive deeper into an activity and to start looking for patterns, structure, and proofs.

Answers

Probability is the underlying concept when shaking dice and the goal is to have students notice which sums occur most frequently/infrequently and use that knowledge to design a winning bingo card.

With two dice:

- 7 has the highest probability while 2 and 12 have the lowest probability.
- The only numbers that are possible are 2 to 12.

With three dice:

- 10 and 11 have the highest probability while 3 and 18 have the lowest probability.
- The only numbers that are possible are 3 to 18.

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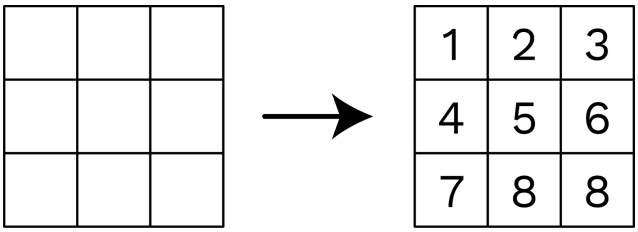
Dice Bingo Instructions

1. Start by filling in your bingo card with numbers. You can use the same number more than once.



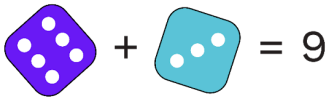
2. Take turns rolling 2 dice. After each roll, all players place a chip on **one** number on their card that matches the sum of the two dice.

Player 1

1	2	3
4	5	6
7	8	8

Player 2

9	10	11
9	10	11
9	10	11



Player 1 rolled a total of 9. Player 1 doesn't have a 9 on the board, so they don't mark anything. Player 2 gets to choose which 9 to mark.

3. The first player to get 3-in-a-row horizontally, vertically, or diagonally wins!

Player 1

1	2	3
4	5	6
7	8	8

Player 2

9	10	11
9	10	11
9	10	11

Player 1 wins!

Dice Bingo Tasks

1. Start with a 3x3 bingo card and 2 dice. Try to make a bingo card that will usually beat your opponent's. As you make your bingo card, think about the following questions:

   Does it matter which numbers you pick?

   Does it matter where you place your numbers?

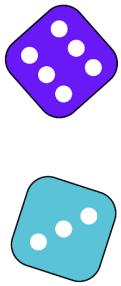
   Is it ever a good idea to pick more than one of the same number?

Player 1

?	?	?
?	?	?
?	?	?

Player 2

?	?	?
?	?	?
?	?	?



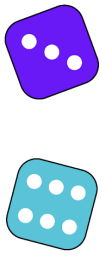
2. Make a 4x4 bingo card for a game using 2 dice. The first player to get 4-in-a-row wins. Do your answers to the previous questions change?

Player 1

?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?

Player 2

?	?	?	?
?	?	?	?
?	?	?	?
?	?	?	?



3. Make a 3x3 bingo card for a bingo game using 3 dice instead of 2. Do your answers to the previous questions change? What if you make a 4x4 bingo card and use 3 dice?

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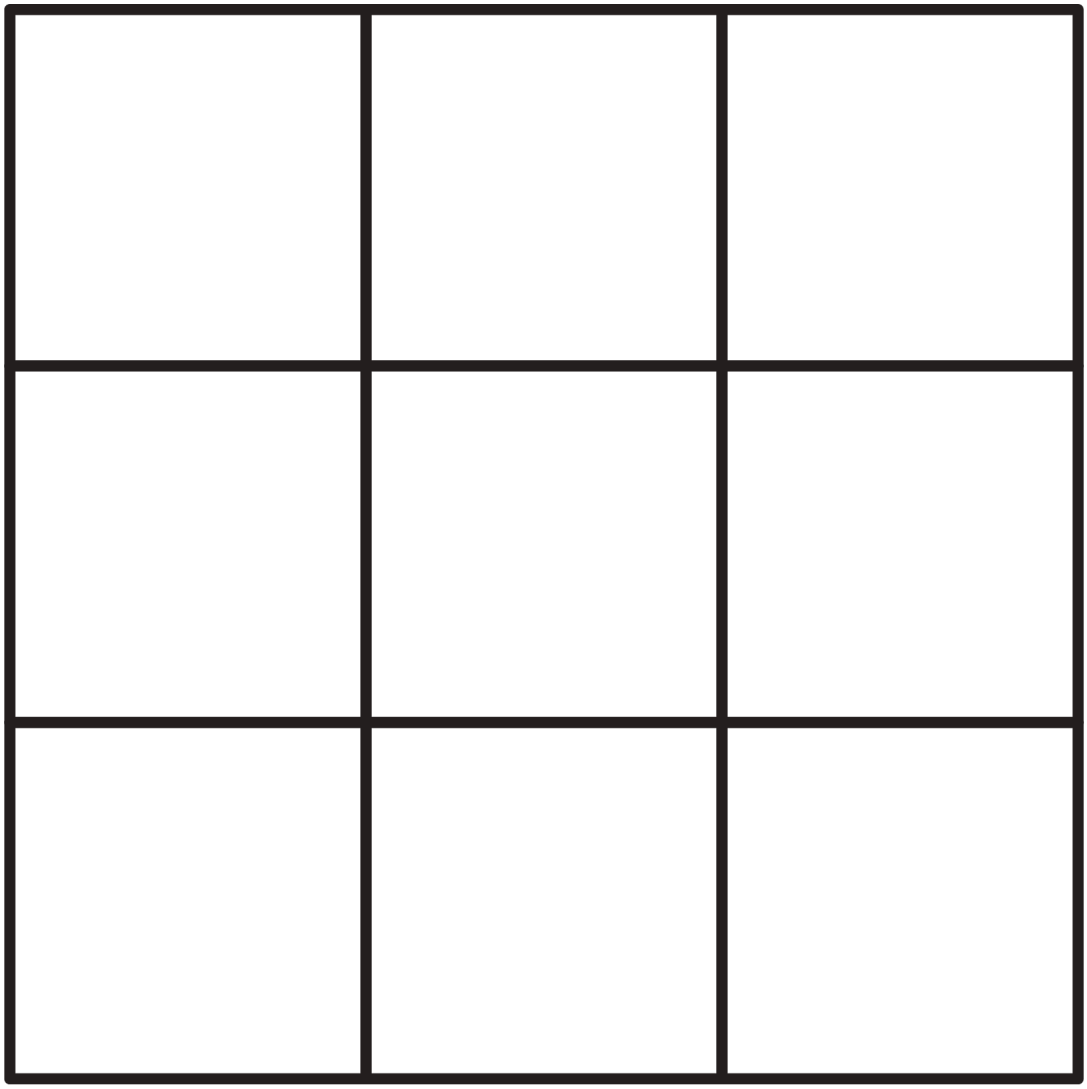
Dice Bingo
3x3



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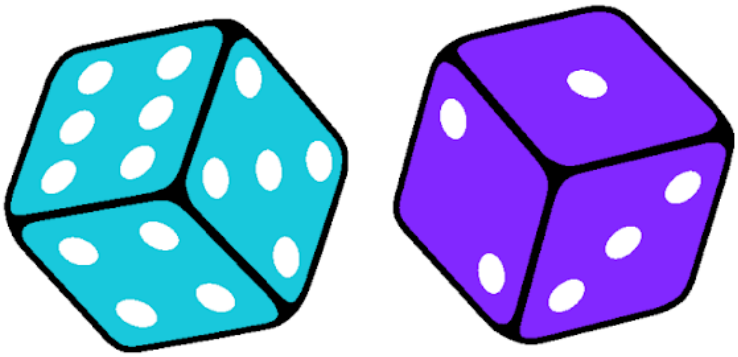
Dice Bingo
4x4

Play for free at
jrmf.org/puzzle/dice-bingo



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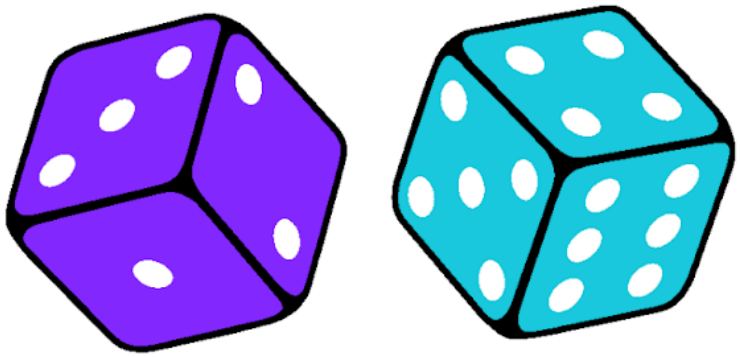

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