

DUELING DICE

FESTIVAL GUIDE

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Materials and Setup

Per table (assuming 3 pairs of students per table), you will need:

Per Table		Material Preparation
6 clear-pocket dice	Each student needs their own dice. (Two dice per pair of students.)	
6 grid markers	Small objects (pawns, pennies, counters etc.) that can be used as placeholders on the grids.	
2 copies of Instructions	1-page sheet	p. 5
3 copies of Tasks	2-page sheet <i>can be printed double-sided</i>	p. 6-7
1 copy of Game Boards	3-page sheet Each student pair needs one game board. The board colors are designed to match the dice colors. <i>DO NOT print double-sided</i>	p. 8-10
3 copies of Number Cards	2-page sheet <i>DO NOT print double-sided</i> Cut apart ahead of time - each group needs one set	p. 11-12
1 copy of Table Sign	1-page sheet <i>print on cardstock for sturdiness</i>	p. 13

Per Table		Purchasing Materials	
6 clear-pocket dice	pack of 6 \$23.99 each		
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

Create a game-winning dice.

Rules:

1. Each player creates a dice by choosing 6 number cards that sum to 9 and placing them in the dice pockets.
2. Each rolls their dice. The player who rolls a higher number moves their pawn one space closer to their colored square on the game board.
3. If there is a tie, nothing happens and both players roll again.
4. Players keep rolling their dice until one player moves the pawn onto their colored square. That player wins the game.

Materials

Each Dueling Dice table should be prepped for 3 stations of two students.

Each station needs:

1. 2 clear-pocket dice
2. 2 grid markers (pawns, pennies, counters etc.)
3. Dueling Dice instructions.
4. Dueling Dice tasks.
5. Dueling Dice game board.
6. Dueling Dice number cards.

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. Have the student(s) create two dice that each have 6 cards that sum to 9.
2. Demonstrate the rules by playing a game with them.
3. Ask if they would like to remake their dice and try again.
4. Have the student(s) explore the next 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. Attend to precision. CCSS.MP6

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.

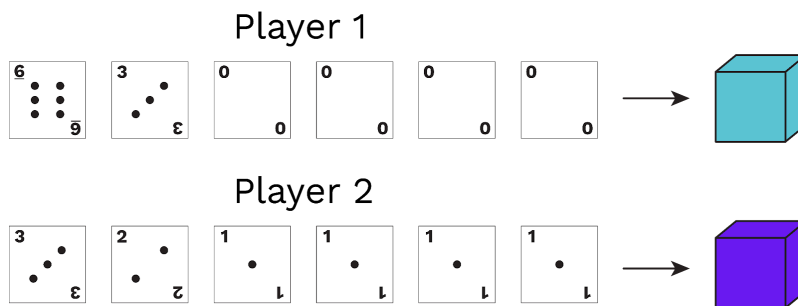
Answers

- Game #1: A beats B, B beats C, and C beats A
- Game #2: A beats B, B and C tie, and C beats A
- Game #3: B beats A, C beats B, and A beats C

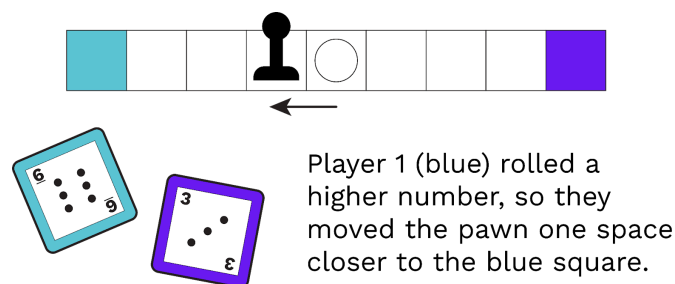
Dueling Dice Instructions

Rules:

- Both players pick 6 number cards and place them in their dice. The 6 number cards must add to 9.



- Both players roll their dice. The player who rolls a higher number moves the pawn one space closer to their colored square on the game board.

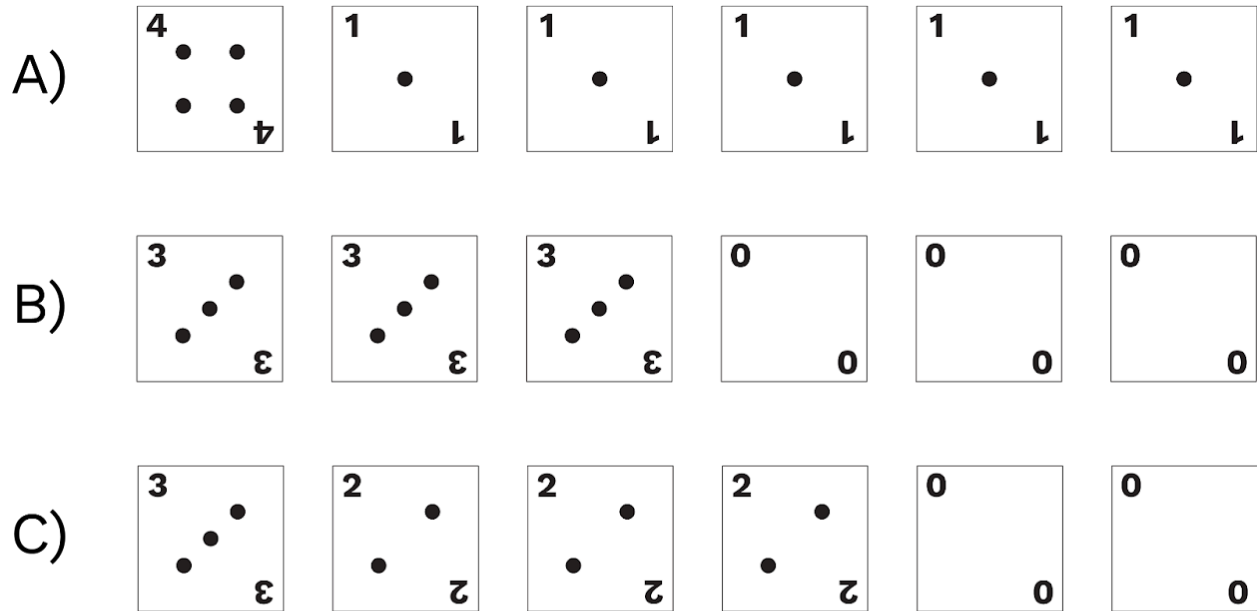


- If there is a tie, nothing happens and both players roll again.
- Players keep rolling their dice until one player moves the pawn onto their colored square. That player wins the game!

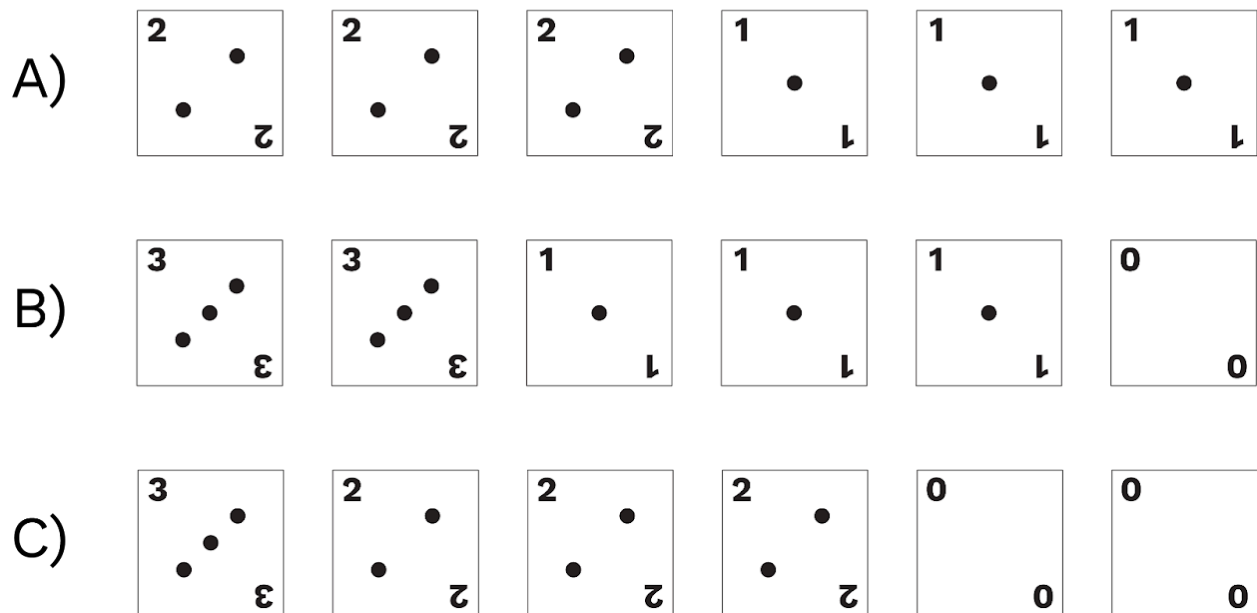
Dueling Dice Tasks

In the games below, players pick one of the three dice to play with.
Can you find the best die in each game?

Game #1

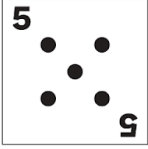
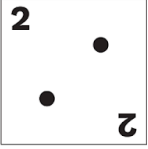
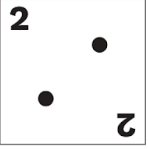
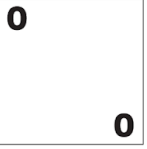
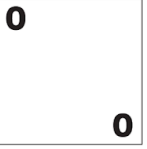
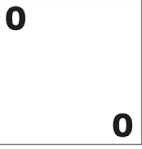
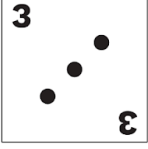
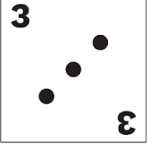
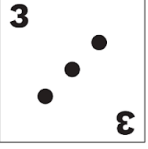
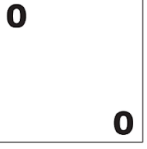
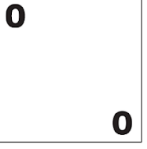
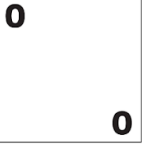
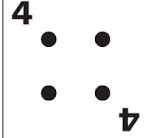
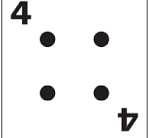
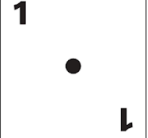





Game #2



Dueling Dice Tasks

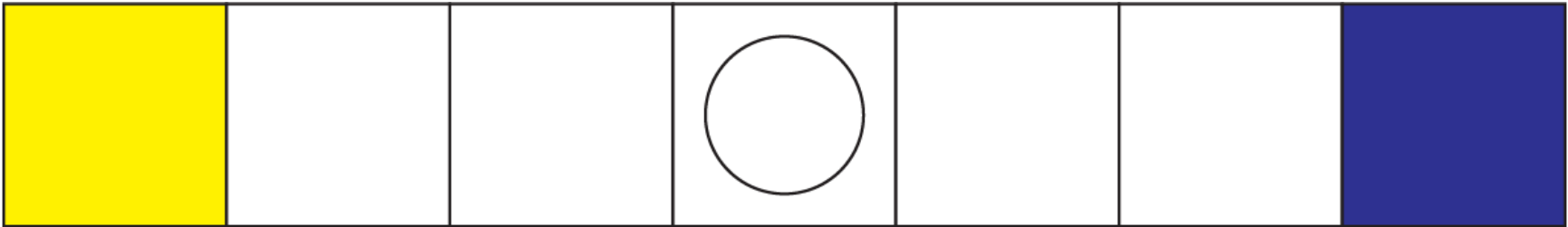
Game #3

A)						
B)						
C)						

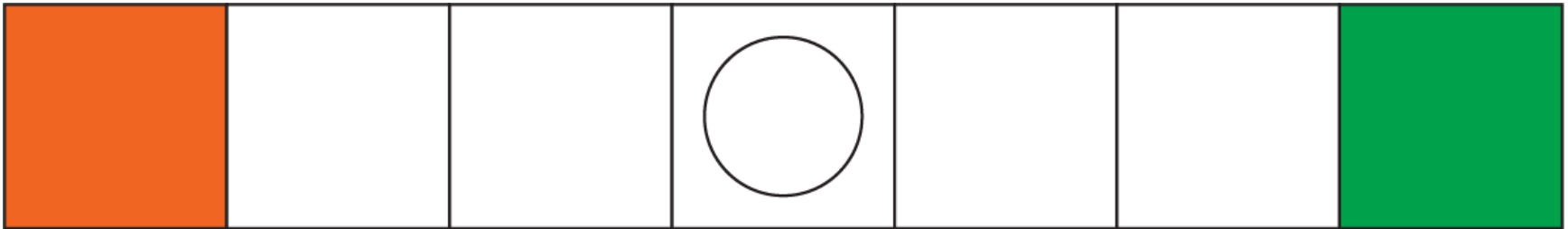
Game #4

Make your own dice. Can you find the best die to play with?

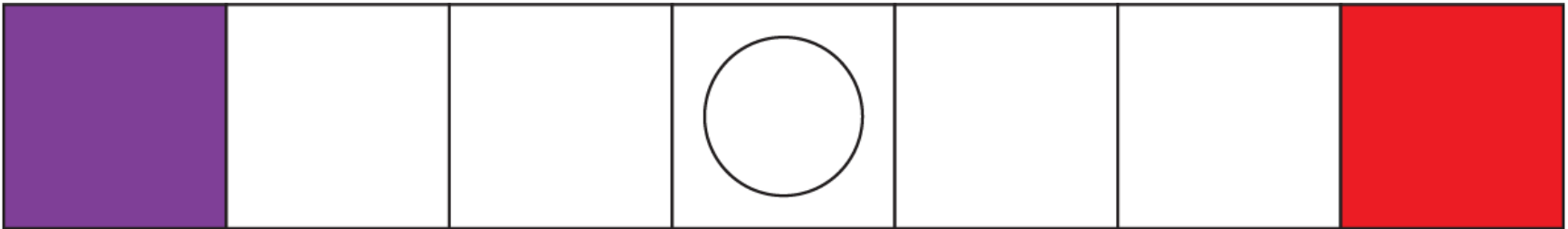
Dueling Dice Game Board



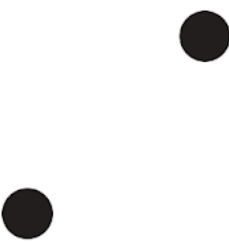
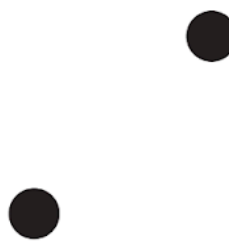
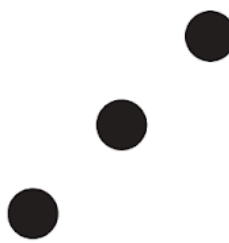


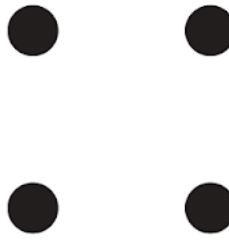
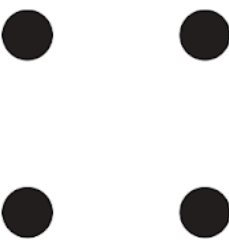

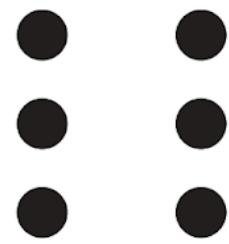
Dueling Dice Game Board



Dueling Dice Game Board

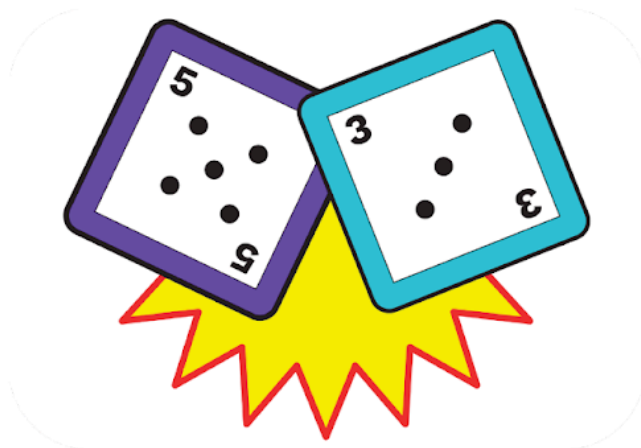


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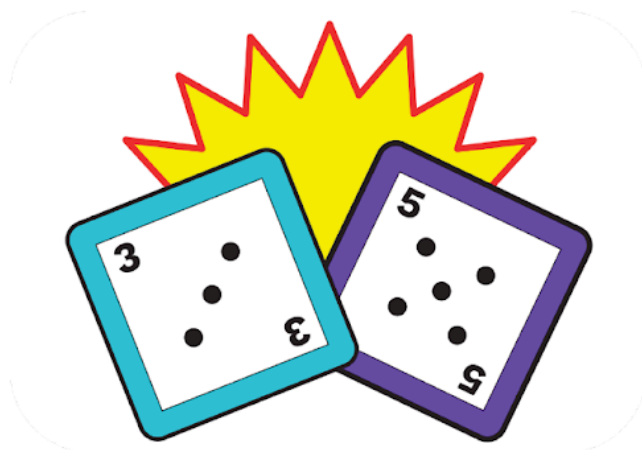
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