

# Operation Wars

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**Math topic:** Numbers & Operations

**Grades:** K-12

## **Curriculum Competency & Content:**

- Develop mental math strategies to make sense of quantities
- Use technology to explore mathematics
- Addition and subtraction, with and without decimals

**Resource:** Personal experience while tutoring

## **Materials:**

- 3 or 4 ten-sided dice (#0-9); or can use regular dice
- 5 or 6 calculators
- Plastic sheet protectors
- Dry erase markers and erasers
- Worksheets with blank squares (see image below, 3-4 of each):
  - 2 digit and 2 digit, no decimals (Gr. K-3)
  - 4 digit and 4 digit, no decimals (Gr. 4-5)
  - 4 digit and 4 digit, decimal in the middle (Gr. 6+)

## **Steps:**

1. Get the group into partners. Each pair gets 1 die to share and each person gets 1 sheet (see above for starting levels).
2. Choose the goal for them: using addition, subtraction, **or** any other operation, try to get the highest **or** lowest value.
3. Taking turns, each person rolls the die and writes their rolled number in one possible box on their sheet. Each partner will have different numbers and must take turns. Repeat until all boxes are filled on both partners' sheets.
4. Each person computes their answer based on the predetermined operation from step 2.
5. Once students have their answer, give them a calculator to check their answers. Once it's verified, determine who the winner is based on the goal from step 2.
6. You may want to first demonstrate a round to ensure they understand the rules of the game.

### Discussion:

- What was your strategy? How did you know where to place each number? Is this game based on luck or skill? Why?
- Where do you find was the best place to put zeroes? Do zeroes make numbers larger or smaller? Why?
- Did checking your answer with the calculator help? Was your mental math often correct?
- What board was the most difficult to win at? Which was the easiest?

### Extensions:

- You can repeat this game with many different operations (add, subtract, multiply, divide, exponents, fractions, etc.).
- You can choose to use decimals or not, depending on the grade and skill level.
- You can switch up the goal: highest number, lowest number, greatest difference, etc.
- You can increase or decrease the number of digits.

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