

Table of Contents

| | |
|---|------|
| About the Games | v |
| About the Author | vii |
| Helpful Math Terms | viii |
| 1. Greater Than, Less Than | 1 |
| Practice the concept, vocabulary, and symbols of inequalities by using randomly generated numbers to maintain the inequality of an equation | |
| Game Variations | 3 |
| a. Smallest Difference..... | 3 |
| Try to maintain the inequality, but with the smallest difference | |
| b. Different Operations..... | 3 |
| Use subtraction, multiplication, or division to maintain the inequality | |
| c. Use the Four Operations to Change the Numbers | 4 |
| Generate two numbers or more at a time and fill in a blank using the sum, difference, product of, or quotient of these numbers to maintain the inequality | |
| d. Comparing Decimals | 4 |
| Game board changes by adding a decimal point to each side of the inequality sign | |
| e. Comparing Fractions and Decimals | 5 |
| Add a decimal point to the number on the right. This is now a decimal with two decimal places. The number on the left may be an integer or a fraction | |
| Questions for Further Discovery | 6 |
| Student Activity Sheets..... | 7 |
| 2. Stand Up and Be Counted! | 13 |
| Translate math vocabulary. As a series of descriptive statements is read, students eliminate one number from a group of chosen numbers | |
| Teaching Management Tip | 15 |
| Game Variations | 15 |
| Questions for Further Discovery..... | 15 |
| Student Activity Cards | 16 |
| 3. Clap Your Hands! Stomp Your Feet! | 19 |
| Practice the multiplication tables through music | |
| Game Variation | 19 |
| Questions for Further Discovery..... | 19 |
| 4. Can You Make.....? | 20 |
| Use a group of numbers and all/some operations to compute a target number | |
| Questions for Further Discovery | 21 |
| 5. Math in a Circle | 22 |
| Starting with a given number, follow the clues to arrive at the final target number | |
| Game Variations | 23 |
| a. Fractions or Decimals..... | 23 |
| b. Larger Numbers or Two-Step Operations..... | 23 |
| c. Reverse Directions | 24 |
| Questions for Further Discovery | 24 |
| The Game Cards | 25 |

| | |
|---|----|
| 6. Fill the Grid! | 29 |
| Fill in a grid with numbers whose product and sum equal one of many target numbers | |
| Game Variation | 31 |
| Question for Further Discovery | 31 |
| Student Activity Sheets | 32 |
| 7. I Know My Place | 34 |
| Recognizing and strategizing about number place value | |
| Game Variations | 35 |
| Question for Further Discovery | 35 |
| 8. Top Ten With a Twist! | 36 |
| Recognition of sums of ten | |
| Game Variations | 36 |
| 9. Let's Sum Up: Odd or Even? | 37 |
| Explore odd and even sums | |
| Game Variations | 38 |
| Question for Further Discovery | 38 |
| Student Activity Sheets | 39 |
| 10. Multi-Math Bingo | 40 |
| Perform mathematical computations to find the correct answer on the Bingo sheet | |
| Positive Integer Bingo | 41 |
| Equivalent Fractions Bingo | 43 |
| Mixed Number/Integer to Improper Fraction Bingo | 45 |
| Improper Fraction to Mixed Number/Integer Bingo | 47 |
| Mixed Number/Improper Fraction/Proper Fraction Bingo | 49 |
| Decimal to Fraction Bingo | 51 |
| Fraction to Decimal Bingo | 53 |
| Roman/Arabic Numerals Bingo | 55 |
| Arabic Numerals to Roman Numerals Bingo | 56 |
| Roman Numerals to Arabic Numerals Bingo | 58 |
| 11. Place Cards – You're Invited! | 60 |
| Use place value cards to come up with the largest possible number | |
| Game Variations | 61 |
| Questions for Further Discovery | 61 |
| Reproducible Place Cards and Activity Sheets | 62 |
| 12. Order Me! | 68 |
| Using a different mathematical operation and a given group of numbers, compute other numbers in the group | |
| Game Variations | 70 |
| a. Use All Operations | 70 |
| b. Use Fractions With Addition and Subtraction | 70 |
| 13. Where Should I Place the Number? | 71 |
| Place randomly generated numbers on board and then follow the instructions in each row to compute the largest final total | |
| Questions for Further Discovery | 72 |
| Student Activity Sheets | 73 |
| Questions for Further Discovery | 77 |

| | |
|---|-----|
| 14. Primes, Composites, Perfect Squares, Factors, and Multiples | 78 |
| Activity to discover the characteristics of numbers in each category (prime, composite and perfect square, factors, multiples) and to practice placing a number in the right category | |
| Game Variations | 79 |
| Questions for Further Discovery | 80 |
| Student Practice Sheet..... | 81 |
| 15. Fraction Recipes | 82 |
| Use the fraction recipe cards and find the number of colored tiles specified in the recipe | |
| Game Variation | 83 |
| Questions for Further Discovery | 83 |
| Fraction Recipe Cards..... | 84 |
| 16. Build With Cubes | 88 |
| Build a multi-colored cube structure using the correct fractional amount of each color cube | |
| Game Variations | 88 |
| Questions for Further Discovery | 88 |
| Student Activity Sheet..... | 89 |
| 17. Fractions and Decimals Let's Compare! | 90 |
| Flip the top card from the players' fraction or decimal decks and determine which player has the largest fraction or decimal | |
| Game Variations | 91 |
| Fraction Cards | 92 |
| 18. Clothesline Fractions/Decimals | 132 |
| Hang a given fraction or decimal card in the correct spot on the number line | |
| Game Variations | 132 |
| 19. Make 1 | 133 |
| Use your fraction cards and any operations to get a sum of 1 | |
| Game Variations | 133 |
| Questions for Further Discovery | 133 |
| Student Activity Sheet..... | 134 |
| 20. Teachable Moments | 135 |
| What Makes a Number Odd or Even?..... | 135 |
| Divisibility Rules | 137 |
| Math Vocabulary and Symbols | 141 |
| My Math Lexicon Sheet..... | 142 |
| Picturing Equivalent Fractions | 143 |
| Exploring Proper Fractions, Improper Fractions, and Mixed Numbers..... | 145 |
| Math Concepts and Skills | 146 |
| Sample Activities | 148 |

Game 4

CAN YOU MAKE.....?

Materials

- Pencil and paper
- Index cards
- Timer
- Overhead, whiteboard, or Smartboard (optional)

Learning Standards for Mathematics

- Fluency using the four operations
- Generate and analyze patterns
- Perform operations with multi-digit whole numbers
- Interpret numerical expressions

– Overview –

Students use number sense, operational skills, and strategies to compute a target number from five randomly chosen numbers. Operational fluency and precision is an asset in this activity.

– The Game –

Distribute six index cards to each student. Each student randomly picks five numbers from 1 to 25 (or from any appropriate interval for the class level) and writes down each number on a separate card. The sixth card is for keeping score. Choose any number from 1 to 50 (or from any interval that is appropriate for your class level) and write it on the board. To involve the students in choosing the number, pick any student, ask the number of the day of her/his birthday, and use that number.

Students have an allotted time (about 1 to 1.5 minutes) to use at least two numbers from their cards and any operation (addition, subtraction, multiplication, and division) to help compute the number on the board. A student must use at least two numbers from her/his cards to compute the number. The same number may not be used twice in any one computation.

As soon as a student has an answer, they raise their hand. When the allotted time is up, students with raised hands will be called on to explain their answers. A correct answer gains one point.

Students should have an index card on which to keep track of their score. This is a good time to use tallying. As students accumulate their scores, explain that keeping score in groups of 5 is so much easier when computing the final score. Look at the difference for a score of 12: ||||| ||||| or ||||| ||||| ||.

Example:

The numbers on my cards are 5, 10, 11, 13, 7

The number on the board is 25.

Possible answer: $13 + 7 + 10 - 5 = 25$

The amazing outcomes – Every number on the board will have at least one solution within the class!

Questions for Further Discovery

- 1 Based on the interval chosen for the cards, for example 1 to 25, what is the highest target number you could compute?

$$25 \times 24 \times 23 \times 22 = 303,600.$$

- 2 If the number cards only have odd numbers, what computations must you do to get an even result?

Some suggestions might be:
Add an even amount of your odd numbers
Subtract two odd numbers.

- 3 If the number cards only have even numbers, is it possible to get an odd result?

Yes, if you use division.

$$\text{Even} + \text{Even} = \text{Even}$$

$$\text{Even} - \text{Even} = \text{Even}$$

$$\text{Even} \times \text{Even} = \text{Even}$$

$$\text{Even} \div \text{Even} = \text{odd or even depending on the numbers.}$$

$$12 \div 6 = 2 \quad 12 \div 4 = 3$$

See "Teachable Moments" (page 133) for further study of odd and even numbers.