Energize You Math Class with Numeration Games and Activities

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Developing Arithmetic in the Elementary Grades

• The separation of arithmetic and algebra deprives students of powerful ways of thinking about mathematics.

• Fundamental properties that children use in calculating are the basis for most of the symbolic manipulation in algebra.
Let’s play the game *Salute*

- Three players on a team
- Deck of cards
- Paper to record (optional)
Using Playing Cards to Form Equations

Four problems involving playing cards

\[ \square + 7 = 10 \quad (x + 7 = 10) \]

\[ \square + \square = 8 + 6 \quad (2x = 8 + 6) \]

The first two cards are the same.

\[ \square + \square + \square = \square + \square \quad (3x = 2y) \]

The first three cards are the same, and the last two cards are the same.

\[ \square + \square + \square + \square = \square + \square + \square + \square \]

All eight cards must be different.
Using Playing Cards to Form Equations
Where is the Math?

- **1.3A** Compose 10 with two or more addends with and without concrete objects
- **2.4A** Recall basic facts to add and subtract within 20 with automaticity.
- **3.4F** Recall facts to multiply by 10 by 10 with automaticity
- **4.4A** Whole number calculations
- **5.3 B** Multiply with fluency
Roll to Win

Materials
three dice, one game board per player

Directions

• Partner Game

• For a first turn, each player rolls all three dice and uses any two of the numbers to make a two-digit number. This number is written in the start box.

• On their next turn, players roll all three dice and use any two numbers to make a two-digit number that is greater than the previous one on their list.

• The larger number is written in the next space, or choose not to, they skip that turn.

• The first player to fill in all boxes wins.
Roll to Win

Where is the math?

- **K.2G** Compare sets of objects up to 20 in a set

- **1.2 F** Represent, compare and order whole numbers in relation to place value up to 120

- **2.2D** Compare whole numbers in relation to place value up to 1,200

- **3. 2D** Compare and order whole numbers up to 100,000

- **4.2C** Compare and order whole numbers using place value to 1,000,000,000

- **5.2B** Compare and order positive rational numbers
Four In a Row

Directions

• Partner Game

• Each player chooses a number from Box A and from Box B and calculates the sum without technology

• The player finds the sum on the game board

• Strategy comes into play when the player understands making sums that will obtain a number in order to get four numbers in a row on the game board
Where is the Math?

- **1.5C** Recognize that a number is 10 more or less than a number
- **2.4B** Student is expected to add up to four two digit numbers
- **3.4A** Use strategies to add and subtract using strategies
- **4.4A** Add whole numbers and decimals using the standard algorithm
- **5.3H** Add fractions and decimals
Hit the Target

Directions

• Partner Game

• Teacher or student chooses a target number and a starting number

• On each turn each partner may add or subtract 1, 2, 5, or 10 to the number in play in hopes of reaching the target number

• The first player to reach the target number is the winner
Where is the Math?

- **1.5C** Use relationships to determine the number that is 10 more and 10 less than a given number up to 120.

- **2.7B** Identify and apply number patterns within properties of numbers and operations in order to describe relationships.

- **3.5A** Addition and subtraction of whole numbers to 1,000 using pictorial models, number lines and equations

- **4.4A** Represent multistep problems involving the four operations with whole numbers

- **5.4A** Represent multistep problems involving the four operations with whole numbers
Leap Frog

Materials

1 hexahedron die, game sheet, one marker per player

Directions

• Partner Game
• The object of the game is to move your marker from your starting number to 9 by finding sums and differences
• Each player rolls the die. Whoever rolls the larger number is player 1. Player one starts on 0 and player 2 starts on 18.
• Players take turns rolling the dice. Each player may add or subtract the number rolled from the number you’re on.
• On each turn you must move your marker. You can not move off of the number line. Sometimes you will not have a choice as to whether you add or subtract.
• The first player to land on 9 is the winner.
Where is the Math?

- **1.5C** Recognize that a number is 10 more or less than a number
- **2.4B** Student is expected to add up to four two digit numbers
- **3.4A** Use strategies to add and subtract using strategies
- **4.4A** Add whole numbers and decimals using the standard algorithm
- **5.3A** Add fractions and decimals
Materials: dominoes, game board, and flash cards

Directions

• Give each player five dominoes and a game board. The dominoes are to be placed face up on the game board.
• Read a fact from the stack of flash cards.
• If the sum of the dots on one of the dominoes is the same as the number called, the player turns over that domino.
• The first player to turn over all five of his dominoes is the winner.
Where is the Math?

• 1.5C Recognize that a number is 10 more or less than a number

• 2.4B Student is expected to add up to four two digit numbers

• 3.4A Use strategies to add and subtract using strategies

• 4.4A Add whole numbers and decimals using the standard algorithm
Addition Board Game

Materials

color tiles, addition game board, and a pair of dice

Directions

• Partner game

• Each player rolls the dice. The student with the highest number plays first.

• Each player covers each square on the playing board with a color tile.

• The first player rolls the dice. The player adds the numbers on the dice. If the player rolls 6 +6, the player may uncover
Domino Clowns

Materials
Dominoes, paper, Domino Clown work mat

Directions
• Game for Partners

• Assign each pair of students a number from 15 to 30

• Have each participant find four dominoes that together have the number of dots as the assigned number. Place the dominoes on the clown work mat as arms and legs

• Each pair verifies each other's sum and write on paper the number sentence for their own dominoes and their partners
Play by matching the fractions in word, picture, and fractional notation forms.

\[
\text{one-half} \\
\frac{1}{2}
\]
Where is the Math?

- **3.3A** Represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines.

- **4.3C** The student applies mathematical process standards to represent and generate fractions to solve problems.
I HAVE WHO HAS

Game for the entire class
Materials: I have, who has card for each participant (30 cards)

Directions

• One participant reads a card
• Who ever has the solution reads their card, then a clue for the next answer
• The activity continues until the last person standing, the first reader, reads his solution to I have.
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