Damath

Damath is an educational board game originating from the Philippines, blending the traditional Filipino game "dama" with mathematical concepts, hence its name. It was invented by Jesus L. Huenda, a public high school teacher in Sorsogon, who encountered difficulties in teaching math using traditional methods. Inspired by a student project called “Dama de Numero” submitted by Emilio Hina Jr. in 1975, Huenda overhauled the game and introduced it to his class, who enjoyed playing it until it is commonly played in all elementary and secondary schools in the Philippines. Huenda’s innovative approach has been recognized nationally and was awarded in 1981 with presidential merit medal, and the game has equipped Filipino students with essential numeracy skills. Damath encourages strategic thinking and problem-solving through creative activities like storytelling, flowcharts, and simulations.

Game Setup

The board consists of 64 squares arranged in a pattern of alternating black and white, similar to a chessboard. Figure 2.5 illustrates that the four fundamental mathematical operations are positioned on the white squares. Each square is labeled using a notation indicating its column and row. For instance, the square at the top-left corner is located at column 0 and row 7, identified as (0, 7)

DaMath Variations:

1. **Counting Numbers:**
    - **Description:** This variation uses positive integers to represent the values at different coordinates on the board.
    - **Coordinates and Values:**
        - (0,1): 1
        - (1,0): 12
        - (1,2): 10
        - (2,1): 4
        - (3,0): 9
        - (3,2): 7
        - (4,1): 11
        - (5,0): 6
        - (5,2): 2
        - (6,1): 8
        - (7,0): 3
        - (7,2): 5
2. **Whole Damaths:**
    - **Description:** This variation uses whole numbers (including zero) to represent the values at different coordinates on the board.
    - **Coordinates and Values:**
        - (0,1): 0
        - (1,0): 11

        - (1,2): 9
        - (2,1): 3
        - (3,0): 8
        - (3,2): 6
        - (4,1): 10
        - (5,0): 5
        - (5,2): 1
        - (6,1): 7
        - (7,0): 2
        - (7,2): 4
3. **Fraction Damaths:**
    - **Description:** This variation uses fractional values to represent the values at different coordinates on the board.
    - **Coordinates and Values:**
        - (0,1): 1/10
        - (1,0): 2/10
        - (1,2): 10/10
        - (2,1): 4/10
        - (3,0): 9/10
        - (3,2): 7/10
        - (4,1): 11/10
        - (5,0): 6/10
        - (5,2): 2/10
        - (6,1): 8/10
        - (7,0): 3/10
        - (7,2): 5/10

4. **Integer Damaths:**
    - **Description:** This variation uses negative integers to represent the values at different coordinates on the board.
    - **Coordinates and Values:**
        - (0,1): -0
        - (1,0): -11
        - (1,2): -9
        - (2,1): -3
        - (3,0): -6
        - (3,2): -8
        - (4,1): -10
        - (5,0): -5
        - (5,2): -1
        - (6,1): -7
        - (7,0): -2
        - (7,2): -4

Game Mechanics

Since Damath is derived from the traditional game of Dama, it follows some of its basic mechanics but introduces unique twists to incorporate mathematical elements. The following are its standard mechanics: Moving the Chips: Players can only slide their chips into an empty adjacent white square. Backward slides are not allowed unless capturing an opponent's chip. Players take turns moving a chip, and passing a turn is not permitted. The "touch move" rule is in effect, meaning once a player touches a chip, they must move it. Each player has 60 seconds per turn to make a move. Capturing an Opponent's Chip and Scoring: To capture an opponent's chip, a player must "jump" over it diagonally, landing on the empty white square adjacent to the captured chip. Captures can be made diagonally forward or backward, and players cannot deny a capture. Upon capturing a chip, the capturing player scores points based on the mathematical operation indicated on the white square where the chip lands. This operation is applied to the numbers on the capturing and captured chips. Earning the "Dama" Chip: A dama chip is an upgraded piece that provides an advantage by moving through multiple squares. A player's chip becomes a dama when it reaches the opponent's squares (1,0), (3,0), (5,0), or (7,0). Similarly, the opponent's chip becomes a dama upon reaching the player's squares (0,7), (2,7), (4,7), or (6,7). Dama chips can move diagonally forward or backward to any empty square without a blocking chip. They capture opponent chips by jumping over them diagonally. The score from the dama chip's capture is calculated by doubling the result of the mathematical operation indicated on the landing square. The score is also doubled if an ordinary chip captures a dama chip or if a dama chip captures another dama chip. Concluding the Game: The game concludes after 20 minutes or if a player cannot move any chips because they are "trapped." The final score is the sum of points from capturing opponent chips and the numbers on remaining chips on the board, with dama chips' scores doubled. The player with the highest final score wins.