
TO THE TEACHER

Introduction

DAMATH, a patent-pending mathematical board-game invented by five-time national awardee *Jesus L. Huenda*, is coined from the popular Filipino checkerboard game of dama, (or lady in Spanish) and mathematics. It started in a Sorsogon National High School class in Sorsogon, Philippines and its popularity spread quickly and resulted in the first national DAMATH competitions held at Legaspi City in 1980. He initiated this competition with the support of the Science Foundation of the Philippines. He hopes to introduce DAMATH to secondary math teachers as part of a requirement of his work as PASMEP Fellow at Curtin University / WACAE, Western Australia. Thus if this material, or part of it, is used commercially or otherwise (except for classroom instruction purposes), permission must be secured in writing from him.

By the way, DAMATH is part of the inventor's position paper, Non-formal mathematics education: the Sorsogon National High School experience, delivered at the 1978 First Southeast Asian Conference on Mathematical Education, PICC, Manila; 1979 and 1980 MTAP national conventions at Legaspi City and Quezon City, respectively. 1981, 1983 and 1988 Philippine Expositions, PHILTRADE, Manila; conference, Mandurah, WA; Australian Association of Mathematics Teachers 13th biennial national conference, Hobart.

Rationale

It is becoming a growing classroom practice in many school subjects, including mathematics, to use games to promote the understanding of concepts and skills. This practice is supported by child psychologist Piaget and Inhelder (1969) and Kohlberg (1969) who are convinced that affective, cognitive, and social development strongly influence one another and develop along parallel lines. There are data to support this statement. Thus, the use of socially interactive mathematical games in learning and teaching mathematics is credible.

Objectives

1. To integrate the Filipino checkerboard game of dama into the teaching of mathematical concepts and skills.
2. To encourage the utilization of recycled materials in constructing damath board set (for classroom use only).
3. To analyze damath as a possible subject of mathematical investigations.
4. To enhance wholesome interpersonal relations among learners.
5. To promote mathematical consciousness among, family members in particular and the community in general through the mathematics club's community outreach damath competitions.
6. To promote awareness of girls in mathematics [as king is to the game of chess, so dama (or lady) is to damath]

Teacher's Notes:

Any game can be trivial or worthwhile. It all depends on the players of the game and when and why. Feedback from teachers who have tried damath is encouraging because they have found it appropriate, fun, and useful in their classes. All 12 games are to be played in pairs. Students learning mathematics in this way have been found to associate mathematics with wholesome and purposeful work. These games may introduce, supplement, reinforce or refresh concepts, skills and attitudes.

To get the most out of damath, read the accompanying guide sheet and list of materials needed. Determine what extra work can be assigned to pairs of students who will carry out the activity. As a follow-up activity, some mathematical investigations concerning damath may be assigned to small groups of students, or mathematics club may conduct community-outreach damath competitions highlighting awareness of girls in mathematics. In doing so, observe student's performance and reactions and record them in a cognitive skill checklist and attitude respectively. This, together with your assessment, will provide you with significant data for future reference.

The inventor welcome suggestions from teachers in the field by sending it to: Jesus L. Huenda, Curriculum Development Division, Bureau of Secondary Education, Department of Education, Culture and Sports, Palacio del Gobernador, Intramuros, Manila. Suggestions and input can be mailed to him using the following form: (See next page).

TO THE STUDENTS

In DAMATH, there are 12 games to play. All of these games are original especially designed for you - - - to make you do and play mathematics, have fun with it in thinking, making a game plan, and using your common sense, honesty and fair play.

Do them and learn mathematics.

Do them and enjoy yourself, too.

Name of the game: _____ School: _____

Sender's Name (Optional): _____ Address: _____

What I like in the game	Areas for improvement

Guide Sheet

Title	Concept	Place in the Curriculum	List of Materials
Damath the Teeny Integer	Integers	Review activity for Units 3 – 8	Damath board set (See attachment A)
Countess Damath	Counting numbers		
Damath-in-a-Whole	Whole numbers		
Damath Over U	Fractions		
Busy Deci Damath	decimals		
Damath the Old Prime Madonna	Prime numbers	Enrichment activity for Units 3 – 8	
Damath the Fibo Nutty Lady	Fibonacci sequence		
Byte-a-Damath	Binary numbers		
Damath a la Mod	Modulo 12		
Trig-a-Damath	Trigonometric Functions	Enrichment activity for Unit 2	
Sci-No-Damath	Scientific Notation	Introductory activity for Unit 5	
Log-a-Damath	Logarithmic function	Enrichment activity for Unit 6	

DAMATH: 12 games for High School Mathematics

Contents Of This Package

- Activity sheets for students for each of the following titles:
 - Activity 1. Damath the Teeny Integer
 - Activity 2. Countess Damath
 - Activity 3. Damath-in-a-Whole
 - Activity 4. Damath Over U
 - Activity 5. Busy Deci Damath
 - Activity 6. Damath the Odd Prime Madonna
 - Activity 7. Damath the Fibon Nutty Lady
 - Activity 8. Byte-a-Damath
 - Activity 9. Damath a la Mod
 - Activity 10. Trig-a-Damath
 - Activity 11. Sci-no-Damath
 - Activity 12. Log-a-Damath
- Teacher' Manual

Rules:

How to START

⇒ 24 chips should be placed first on the following squares on the DAMATH board <=

Chip Number	Position of Blue Chip	Position of Red Chip
0	(5 , 2)	(2 , 5)
- 1	(3 , 2)	(4 , 5)
2	(7 , 2)	(0 , 5)
- 3	(1 , 2)	(6 , 5)
4	(4 , 1)	(3 , 6)
- 5	(2 , 1)	(5 , 6)
6	(6 , 1)	(1 , 6)
- 7	(0 , 1)	(7 , 6)
8	(5 , 0)	(2 , 7)
- 9	(3 , 0)	(4 , 7)
10	(7 , 0)	(0 , 7)
- 11	(1 , 0)	(6 , 7)

How to make a move

1. Toss a coin to decide who moves first.
2. The first player moves a piece by sliding diagonally forward to an adjoining vacant square (no chip is to be placed on colored squares). Record your move in the scoresheet.

Example:

Red player moves “-1” to an adjoining vacant square (5 , 4), thus, to the scoresheet the player writes on the first column under the heading “Move” with $[-1 \rightarrow (5,4)]$ to mean “-1” goes to a square located 5 on its x-axis and 4 on its y-axis.

3. The two players alternately take turn in moving a piece.

How to take a piece (Ka-on)

1. In the example above, Red player with piece “-1” is required (*pass is not allowed*) to take a piece “2” of Blue side by jumping over the piece to be taken and landing on the latter’s adjoining vacant square, which, also, determine the symbol of operation to be used.

Example:

“-1” takes “2” by jumping over it (*player gets the piece “2”*) and finally lands on a square (7,2) which has minus sign on it. Thus, on the scoresheet, the player writes on the first column with “-1 – 2”. Moreover, on the second column under the heading “Score”, the player writes the answer as “-3”. While on the third column under the heading “Total Score”, the player writes the total score by adding whatever points in it, thus, “-3”. Round off numbers, if necessary.

2. A player can take one chip or more than one chip with the required option to take the greater number of chips.
3. A Red chip is declared as “*dama*” if it reaches any of the following squares:

(1 , 0)	(3 , 0)	(5 , 0)	(7 , 0)
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Similarly, for Blue Chip as follows:

(0 , 7)	(2 , 7)	(4 , 7)	(6 , 7)
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4. Once a piece is declared as “*dama*” it could slide diagonally forward or backward in any vacant square provided no opposing piece blocks it. It could take a piece or pieces and have the privilege of doubling its scores.
5. The game is ended it - - -
 - (a.) a player has no more piece to move; or,
 - (b.) it is impossible for any or both players to go on because of repeated move.

Activity	1 :	DAMATH	the	Teeny Integer
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A game for two players.

What you need

- * DAMATH board (8 squares by 8 squares)
- 24 chips in two colors: (12 of each color, thus, 0, -1, 2, -3, 4, -5, 6, -7, 8, -9, 10, -11)

For illustration, see attachment A of this Package.

What it is about

It is a game of addition, subtraction, multiplication and division of integers, rounding off numbers, and point plotting.

Aim of the Game

The player with the most points wins.

Activity 2 : Countess DAMATH

A game for two players.

What you need

Same materials as in Activity 1, but on the reverse side of chip no. "0" write chip no. "12".

What it is about

It is a game of adding, subtracting, multiplying, and dividing counting numbers; rounding off numbers, and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rules as in Activity 1, but the “0” chip is replaced by “12” [“12” is on the reverse side of “0” chip]; and, negative signs have to be disregarded. Thus, initial positions of the chips are as follows:

Chip Number	Position of Blue Chip	Position of Red Chip
1	(1 , 2)	(6 , 5)
2	(3 , 2)	(4 , 5)
3	(5 , 2)	(2 , 5)
4	(7 , 2)	(0 , 5)
5	(0 , 1)	(7 , 6)
6	(2 , 1)	(5 , 6)
7	(4 , 1)	(3 , 6)
8	(6 , 1)	(1 , 6)
9	(1 , 0)	(6 , 7)
10	(3 , 0)	(4 , 7)
11	(5 , 0)	(2 , 7)
12	(7 , 0)	(0 , 7)

In taking a chip or chips, addition, subtraction multiplication, and division of counting numbers are used. Round off numbers, if necessary, in making entries on the scoresheet.

Activity 3 : DAMATH – in – a - Whole

A game for two players.

What you need

Same materials as in Activity 1

What it is about

It is a game of adding, subtracting, multiplying and dividing Whole numbers ; rounding off numbers, and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rules as in Activity 2, but the “12” chip is replaced by “0” [“0” is on the reverse side of “12” chip]; and, negative signs have to be disregarded. Thus, initial positions of the chips are as follows:

Chip Number	Position of Blue Chip	Position of Red Chip
0	(1 , 2)	(6 , 5)
1	(3 , 2)	(4 , 5)
2	(5 , 2)	(2 , 5)
3	(7 , 2)	(0 , 5)
4	(0 , 1)	(7 , 6)
5	(2 , 1)	(5 , 6)
6	(4 , 1)	(3 , 6)
7	(6 , 1)	(1 , 6)
8	(1 , 0)	(6 , 7)
9	(3 , 0)	(4 , 7)
10	(5 , 0)	(2 , 7)
11	(7 , 0)	(0 , 7)

In taking a chip or chips, addition, subtraction multiplication, and division of whole numbers are used. Round off numbers, if necessary, in making entries on the Scoresheet.

Activity 4 : DAMATH Over U

A game for two players.

What you need

Same materials as in Activity 1, but the positive and negative numbers should have “10” as denominator (use reverse side of chips).

What it is about

It is a game of adding, subtracting, multiplying and dividing fractions; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity1, but adding, Subtracting, multiplying and dividing fractions are used, thus, all entries on the Scoresheet are fractions.

Activity 5 : Busy Deci DAMATH

A game for two players.

What you need

Same materials as in Activity 4, but decimal equivalent should take the place of fractions.

What it is about

It is a game of adding, subtracting, multiplying and dividing decimals; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 4, but instead of fractions, the decimal equivalents are added, subtracted, multiplied, and divided. In taking a chip or chips, results of mathematical operations are rounded off to the nearest hundredths.

Activity 6 : DAMATH the Odd Prime Madonna

A game for two players.

What you need

Same materials as in Activity 1

What it is about

It is a game of prime numbers; integers; squaring numbers; rounding off numbers; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 1, but in taking a chip or chips the results of algebraic operations are squared if it is an odd prime number.

Activity 7 : DAMATH the Fibo Nutty Lady

A game for two players.

What you need

Same materials as in Activity 2

What it is about

It is a game using the Fibonacci sequence; counting numbers;
Cubing numbers; rounding off numbers; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 2, but in taking a chip or chips the results of mathematical operations are cubed if it is a Fibonacci number.

Activity 8 : Byte – a - DAMATH

A game for two players.

What you need

Same materials as in Activity 3, but even numbers are to be considered as “0”, while odd numbers as “1”.

What it is about

It is a game of adding, subtracting, multiplying and dividing binary numbers; and point plotting

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 3, but in taking a piece or pieces binary arithmetic is used. Thus, initial positions of blue and red chips are as follow:

Chips	Position of Blue Chip	Position of Red Chip
0	(1 , 2)	(6 , 5)
1	(3 , 2)	(4 , 5)
0	(5 , 2)	(2 , 5)
1	(7 , 2)	(0 , 5)
0	(0 , 1)	(7 , 6)
1	(2 , 1)	(5 , 6)
0	(4 , 1)	(3 , 6)
1	(6 , 1)	(1 , 6)
0	(1 , 0)	(6 , 7)
1	(3 , 0)	(4 , 7)
0	(5 , 0)	(2 , 7)
1	(7 , 0)	(0 , 7)

Activity 9: DAMATH - a la Mod

A game for two players.

What you need

Same materials as in Activity 3

What it is about

It is a game of addition, subtraction, multiplication and Division in module 12; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 3, but in taking a piece or pieces binary arithmetic is used. Thus, initial positions of blue and red chips are as follow:

Chips	Position of Blue Chip	Position of Red Chip
1	(1 , 2)	(6 , 5)
2	(3 , 2)	(4 , 5)
3	(5 , 2)	(2 , 5)
4	(7 , 2)	(0 , 5)
5	(0 , 1)	(7 , 6)
6	(2 , 1)	(5 , 6)
7	(4 , 1)	(3 , 6)
8	(6 , 1)	(1 , 6)
9	(1 , 0)	(6 , 7)
10	(3 , 0)	(4 , 7)
11	(5 , 0)	(2 , 7)
12	(7 , 0)	(0 , 7)

Activity 10: Trig – a - DAMATH

A game for two players.

What you need

Same materials as in Activity 1, but the following integers should have the Corresponding trigonometric functions by changing them to degrees:

Chips in degrees	Trigonometric Functions
-1 and 10	Sin
-3 and 8	Cos
-5 and 6	Tan
-7 and 4	Cot
-9 and 2	Sec
11 and 0	Csc

What it is about

It is a game using trigonometric functions; trigonometric identities; changing degrees to radians and vice – versa; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 1, but in taking a piece or pieces (this time, integers are expressed in degrees) trigonometric functions and identities are used. Thus, initial positions of blue and red chips are as follow:

Chips in degrees	Position of Blue Chip	Position of Red Chip
Csc 0	(5 , 2)	(2 , 5)
Sin -1	(3 , 2)	(4 , 5)
Sec 2	(7 , 2)	(0 , 5)
Cos -3	(1 , 2)	(6 , 5)
Cot 4	(4 , 1)	(3 , 6)
Tan -5	(2 , 1)	(5 , 6)
Tan 6	(6 , 1)	(1 , 6)
Cot -7	(0 , 1)	(7 , 6)
Cos 8	(5 , 0)	(2 , 7)
Sec -9	(3 , 0)	(4 , 7)
Sin 10	(7 , 0)	(0 , 7)
Csc -11	(1 , 0)	(6 , 7)

Activity 11 : Sci – no - DAMATH

A game for two players.

What you need

Same materials as in Activity 2, but the integers are raised to their corresponding Powers as follows.

Chips	Expressed in Scientific Notation
1	1.1×10^{-1}
2	2.2×10^{-2}
3	3.3×10^{-3}
4	4.4×10^{-4}
5	5.5×10^{-5}
6	6.6×10^{-6}
7	7.7×10^{-7}
8	8.8×10^{-8}
9	9.9×10^{-9}
10	1.01×10^{10}
11	1.11×10^{11}
12	1.212×10^{12}

**What it is a
bout**

It is a game of adding, subtracting, multiplying and dividing numbers in scientific notation; and point plotting.

Aim of the Game

The player with the most points wins.

Rules

Same rule as in Activity 2, but addition, subtraction, multiplication, and division of numbers in scientific notation are used; thus, entries on the Scoresheet should be numbers expressed in scientific notation.

Activity 12 : Log - a - DAMATH

A game for two players.

What you need

Same materials as in Activity 11 (common logarithm) or as in Activity 10 (for logarithms and trigonometric function), as the case maybe, depending player's agreement.

What it is about

It is a game of common logarithms; logarithms of trigonometric functions; and point plotting.

Aim of the Game

Same as in Activity 11 or Activity 10, as the case maybe.

Rules

Same rules as in Activity 11 or Activity 10, as the case maybe, depending on the player's agreement, but common logarithms and logarithms of trigonometric functions are used, respectively. Thus, entries on the Scoresheet should have common logarithms or logarithms of trigonometric functions, as the case maybe/

Playing DAMATHS

A. GAMES FOR DAMATHS COMPETITIONS:

Levels	Grades	-	Contents
Level 1	Grades I – II	-	Counting Numbers
Level 2	Grades III – IV	-	Whole Numbers
Level 3	Grades V – VI	-	Positive Fractions
Level 4	First Year	-	Integers
Level 5	Second Year	-	Signed Fractions
Level 6	Third Year	-	Radical Damath
Level 7	Fourth Year	-	Polynomial Damath

B. POSITIONS OF CHIPS: (Elementary Level)

CHIP NUMBERS				
Level I	Level II	Level III	BLUE CHIPS	RED CHIPS
1	0	1/10	(1 , 2)	(6 , 5)
2	1	2/10	(3 , 2)	(4 , 5)
3	2	3/10	(5 , 2)	(2 , 5)
4	3	4/10	(7 , 2)	(0 , 5)
5	4	5/10	(0 , 1)	(7 , 6)
6	5	6/10	(2 , 1)	(5 , 6)
7	6	7/10	(4 , 1)	(3 , 6)
8	7	8/10	(6 , 1)	(1 , 6)
9	8	9/10	(1 , 0)	(6 , 7)
10	9	10/10	(3 , 0)	(4 , 7)
11	10	11/10	(5 , 0)	(2 , 7)
12	11	12/10	(7 , 0)	(0 , 7)

POSITIONS OF CHIPS: (Secondary Level)

CHIP NUMBERS				For 4 th Year Only, Blue & Red Chips	
1 st Year	2 nd Year	3 rd Year	4 th Year	BLUE CHIPS	RED CHIPS
0	0/10	$4\sqrt{18}$	6x	(5 , 2)	(2 , 5)
-1	-1/10	$-\sqrt{8}$	$-xy^2$	(3 , 2)	(4 , 5)
2	2/10	$16\sqrt{32}$	10y	(7 , 2)	(0 , 5)
-3	-3/10	$-9\sqrt{2}$	$-3x^2y$	(1 , 2)	(6 , 5)
4	4/10	$36\sqrt{32}$	28y	(4 , 1)	(3 , 6)
-5	-5/10	$-25\sqrt{18}$	-15x	(2 , 1)	(5 , 6)
6	6/10	$64\sqrt{2}$	$36x^2y$	(6 , 1)	(1 , 6)
-7	-7/10	$-49\sqrt{8}$	$-21xy^2$	(0 , 1)	(7 , 6)
8	8/10	$100\sqrt{2}$	$66x^2y$	(5 , 0)	(2 , 7)
-9	-9/10	$-81\sqrt{32}$	-45y	(3 , 0)	(4 , 7)
10	10/10	$144\sqrt{8}$	$78xy^2$	(7 , 0)	(0 , 7)
-11	-11/10	$-121\sqrt{18}$	-55x	(1 , 0)	(6 , 7)

POSITIONS OF CHIPS: (Secondary Level)

CHIP NUMBERS					
Level 4	Level 5	Level VI	Level VII	BLUE CHIPS	RED CHIPS
		1.1×10^{-1}	0	(1 , 2)	(6 , 5)
		2.2×10^{-2}	1	(3 , 2)	(4 , 5)
		3.3×10^{-3}	2	(5 , 2)	(2 , 5)
		4.4×10^{-4}	3	(7 , 2)	(0 , 5)
		5.5×10^{-5}	4	(0 , 1)	(7 , 6)
		6.6×10^{-6}	5	(2 , 1)	(5 , 6)
		7.7×10^{-7}	6	(4 , 1)	(3 , 6)
		8.8×10^{-8}	7	(6 , 1)	(1 , 6)
		9.9×10^{-9}	8	(1 , 0)	(6 , 7)
		1.01×10^{10}	9	(3 , 0)	(4 , 7)
		1.111×10^{-11}	10	(5 , 0)	(2 , 7)
		1.212×10^{12}	11	(7 , 0)	(0 , 7)

General Guidelines on DAMATHS Century Match

1. First player is determined by drawing lots.
2. Basically the rule in playing dama shall be used as follows:
 - a. A “chip with numeral” moves diagonally forward to an adjoining vacant square.
 - b. A chip takes an opponent’s chip or chips diagonally forward or backward. Mathematical operation such as addition subtraction, multiplication, or division of numerals shall be used depending on the vacant square’s operation symbol where the “taker” chip lands by jumping over the “taken” chip, “pass” is not allowed.
 - c. On taking a chip or chips the following policy shall prevail:
 - * “mayor dalawa” (x) takes 0 VS (y) takes 1, takes 2
 - * “mayor tatlo” (x) takes 0 VS (y) takes 1, takes 2, and takes 3
 - * “mayor dama” (x) takes 0 VS (dama) takes 1
 - * “mayor dama dalawa” (dama) takes 0 VS (x) takes 1, takes 2 over mayor dama.
 - d. A player’s chip is declared as “dama” if it reaches the other player’s designated “dama” locations or squares. A dama chip can move or take a piece to any unoccupied square along the diagonal path. Moreover, when a “dama” takes a chip the score is doubled; when the “dama” is taken the score is also doubled; when a “dama” takes another “dama” the score is quadrupled.
 - e. In taking more than one chip, the “taker” chip shall remain as the initial addend, minuend, multiplicand, or dividend as the case maybe. (This means that MDAS for multiple operations shall not apply in this case).
 - f. A “move” is good only for one (1) minute, while the game’s duration shall not exceed 20 minutes.
 - g. The remaining chips shall be added to the respective players.
 - h. The game ends when any one of the following situations occur:

- 1.) a player has no more chip to move
 - 2.) 20-minute game duration had elapsed
 - 3.) repetitive “moves” of any or both players.
- i. The player having the greater “total score” wins the game. In case of a “tie”, a 10-minute rematch follows thereafter until a winner is declared.
 - j. No player is allowed to compete in a level lower than the one specified for his grade level.
 - k. In playing, the “TOUCH-MOVE SYSTEM” is used. Once a player “touches” a chip, it is imperative that he uses that chip for that particular move.
 - l. A move is considered final once a player releases the chip, and he cannot change his move after he has released the chip.
 - m. The use of calculator is recommended.
 - n. All players in each level are ranked according to their respective number of games won to determine the winners. In case of a “triple tie”, the “the point-system” is used.

Guidelines for Electrodamaths

1. ElectroDamaths is similar to Damath the whole numbers with certain variations as follows:
 - a.) Odd numbers expressed in KWH
 - b.) Even numbers expressed in Pesos, except (0) zero.

2. Sample in scoring:

Chips	Move	Score		Total Score	
		KWH	fca in Pesos	KWH	fca in Pesos
+ like Units	3 kwh + 5kwh	8	NS	8	
+ like Units	₱ 2 + ₱ 10	NS	12		12
+ unlike Units	7 kwh + ₱ 4	NS	NS	8	12
- like Units	5 kwh - 9 kwh	NS	NS	8	12
- like Units	₱ 6 - ₱ 0	NS	6	8	18
- unlike Units	7 kwh - ₱ 4	NS	NS	8	18
÷ like Units	3 kwh ÷ 5kwh	NS	NS	8	18
÷ like Units	₱ 6 ÷ ₱ 2	NS	NS	8	18
÷ unlike Units	7 kwh ÷ ₱ 4	NS	NS	8	18
× like Units	3 kwh × 5kwh	NS	NS	8	18
× like Units	₱ 2 × ₱ 10	NS	NS	8	18
× unlike Units	7 kwh × ₱ 4	NS	NS	8	18
Plus the remaining chips	7 kwh + 11kwh	18	NS	26	18
	₱ 4 + ₱ 8	NS	12	26	30
Total kwh × prevailing rate at the venue		26 kwh × ₱4/kwh =>		₱ 104	₱ 30
TOTAL ELECTRIC CONSUMPTION				→ ₱ 134	

3. Player having the least total electric consumption WINS the game.

LEGEND: * NS – No Score
* fca - fuel cost adjustment

The DAMATH Board

(For 1st Year, 2nd Year & 3rd Year ONLY)

	0	1	2	3	4	5	6	7	
7	X		÷		-		+		7
6		÷		X		+		-	6
5	-		+		X		÷		5
4		+		-		÷		X	4
3	X		÷		-		+		3
2		÷		X		+		-	2
1	-		+		X		÷		1
0		+		-		÷		X	0
	0	1	2	3	4	5	6	7	

The DAMATH Board

(For 4th Year ONLY – Polynomial Damath)

	7	6	5	4	3	2	1	0	
7	X		÷		-		+		0
6		÷		X		+		-	1
5	-		+		X		÷		2
4		+		-		÷		X	3
3	X		÷		-		+		4
2		÷		X		+		-	5
1	-		+		X		÷		6
0		+		-		÷		X	7
	0	1	2	3	4	5	6	7	

Reg. Phil. Pat. Pending PIDI No. 4715
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