

# EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM

## Mathematics Within: Algebraic Patterns

### Lesson Plan -- Part 1

(Part 2—Judy Klatt)

**Participant Name:** Lynn Bartol

**Broad Topic:** Area Model “Multiplication Wrestling”

**Subtopic:** Lattice Method of Multiplication Variances

#### Aim:

*Students will get the largest product of two 2-digit numbers using an area model for multiplying in game format.*

#### Specific Objective(s):

- o Learn the area model using 2-digit multiplication
- o Practice 2-digit multiplication using place value terms by decomposing
- o Find patterns on the recording sheet from the game played
- o Analyze the game for strategies necessary to win

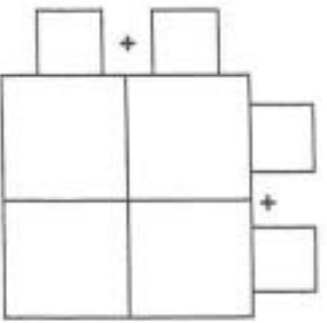
#### Materials/Supplies:

- o Post-it squares
- o Number cards 1-9 (4 of each) for each pair of students
- o Pencils
- o Cm graph paper/or 2x2 lattice box recording sheet
- o Calculators (if necessary)
- o Wrestling mat
- o Large chart of paper
- o Overhead of recording sheet

#### Lesson:

- o Using the Area Model and Partial Products Method to Solve Equations
- o Set: Ask, " Can anyone tell me what our governor, Jesse Ventura, and a rock have in common? (both wrestlers from the WWF)
- o Intro: Say, " Today I'm going to teach you a game to play with a partner. It's called Multiplication Wrestling. The object of the game is to get the largest product of two 2-digit numbers. (We'll be using an area model to find our scores and look for patterns.) (see page 3)
- o Teach: Teacher Model Game
  1. **Say:** Prepare the game by removing from a deck of cards all the 10, J, Q, K, and Jokers. We'll be using the 1-9 (aces are 1's)
  2. Shuffle the cards and place them face down.
  3. Each player draws 4 cards and forms two 2-digit numbers. **Say,** "There are many ways possible to form 2-digit numbers using the four cards. (Here students should try to form numbers to create their products as large as possible, but don't instruct them on how this may be done-- leave as discovery).
  4. (See page 4) **Demonstrate,** on a "wrestling mat "(large chart paper, with a 2X2 grid) how to record the 2 digit numbers as "wrestling teams" by writing each of their numbers as a sum of tens and ones. Ex:  $(70 + 5) \times (60 + 2)$ . First, demonstrate, using post-it notes marked with a T for tens and O for ones, how the tens multiply with the tens, then the tens and the ones, then the ones and the tens, and lastly the ones and the ones. After the two teams have "wrestled", the four products are then summed. The player with the largest product wins the round and receives a point. Place a V on your sheet where the largest score occurs. This is the end of round 1. Three rounds complete a game.
- o **Student Guided Practice:**

1. **Pass out** the decks of cards, "wrestling mats," and recording sheets. **Explain** that we will play one round together, to practice and to understand how to use the scoring sheets. **Ask** a student to pull a card and give the digit. Place on the wrestling mat in the tens place. Continue with three other students until you have two 2-digit numbers. Have students record on the sheet the same as you model on an overhead copy (or large chart paper copy of the record sheet.) Have the tens wrestle, record the tens products, then the tens and ones and record their products. Continue until all four have been wrestled and recorded. (you may have to let students use calculators if their basic X facts are not secure, or teach the quick trick of multiplying the numeric factors and adding the number of D's) Make sure students are recording all factors and products in the area model. Now, sum the interior products. **Explain**, that not only do the two 2-digit numbers wrestle, but your sums wrestle with your partner's sums to determine the winner of the round. **Ask**: "Does everyone understand how to play? Does anyone have any questions about the rules?" Clarify any responses.
  - o **Student Practice**: Allow students to play at least 3 rounds (1 game) or by a time limit. Circulate and assist as needed.
  - o **Wrap Up and Revisit**: **Ask**, " Look at your recording sheet. Do you see any patterns? Discuss any patterns students find. **Ask**, " What strategies did you use to find the largest products?" (Students should understand that the largest digits needed to be in the tens place.)
  - o As time permits, continue discussion extending to: smallest product, adding zero to the game, etc



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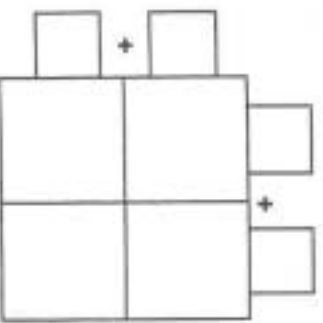
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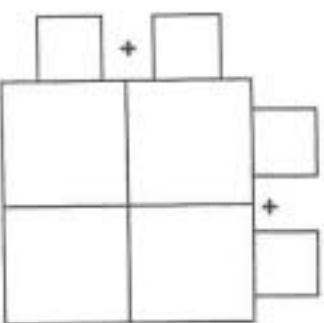
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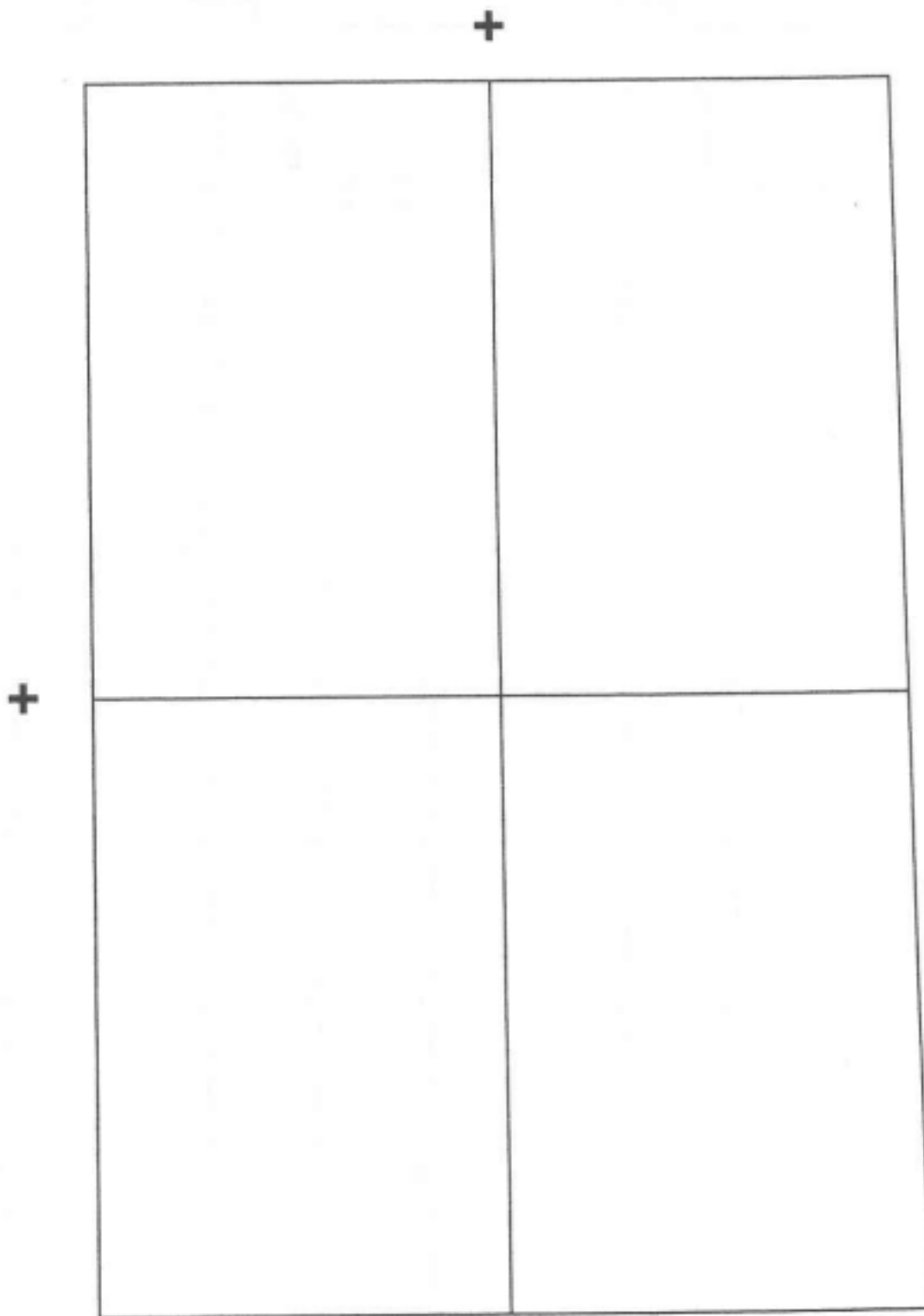
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**Text or Website references:**

- o *Everyday math*—Level 5—“Multiplication Wrestling”