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| **Math 4** | | |
| **Subject: Math**  **Unit: Multiplication Strategy: Write the Number in Expanded Form** | | |
| **Learning Target:** Students will learn that writing a number in expanded form and then using the distributive property can be used to solve a multiplication problem. These activities will help students further develop their understanding of the timetables and multiplication strategies. | | |
| **Curriculum Outcomes:**  **N6** Students will demonstrate an understanding of multiplication (1, 2 or 3 digit by 1 digit numerals). They will apply the distributive property to solve multiplication problems. | | |
| **Screencast Support:**  Screencast - **Multiplication Strategies** – slide 3  Screencast **– Multiplying 3 Digit by 1 Digit Numbers** | | |
| **Resources/AT Tips:**  **-Screencast** – Multiplication Strategies (slide 3)  -**Screencast** – 3 Digit by 1 Digit Multiplication  -iPads  -Number Basics App HD:Users:lorna:Desktop:Screen Shot 2015-07-03 at 8.55.14 AM.png  - Showme  -Digital Base Ten Blocks  Concrete Base ten blocks and place value chart  -**Activity Sheet**–Step by Step, Question 6, p.252, Math Makes Sense 4 | | |
| **Lesson Procedure** | | **21st Century Skills** |
| **I do:**  **Activate Prior Knowledge**   * Review expanded form with addition. * Present a number like 32. Ask, ”How can you model this number with base ten blocks? (3 rods and 2 units). * Present a couple of other numbers. Represent in a similar way. | | find, validate  remember, understand |
| **You do:**   * Using the **Smartboard,** present a word problem. Ex: There are 24 balloons in each package. Joel bought 5 packages. How many balloons did he buy? **Discuss** ways to solve this problem; let students take the lead. (They should mention base ten blocks, drawing, etc.) * Have students view the screencasts, [**Multiplying** **3 Digit by 1 Digit Numbers**](https://www.youtube.com/watch?v=Vzbow7oaz48)and   **[Multiplication Strategies](https://www.youtube.com/watch?v=uQ41MtcKnwk)**  slide 3,that highlights the ‘expanded form’ strategy.   * Using the Smartboard as a tech tool, **discuss** and review the ‘expanded form’ strategy that was presented in the screencasts. | | collaborate, communicate  analyze, synthesize |
| **We do:**   * Ask students to explore question one on p. 292 of their textbook: finding the missing number. They can copy the questions from the text onto paper **or** use their **iPads** to expand the numbers. (**Showme or Number Basics app**) * Ask students to tackle the “step by step’ activity sheet (below). * When comfortable, present directions for the **practice sheet** (below). | | communicate  analyze, synthesize  critical thinking  evaluate, leverage  create |
| **We share:**   * As a class, students use the iPads or Smartboards to **explain and share** how they determined the missing numbers from the textbook practice exercise. (expanding strategy) * They can also ‘co teach’ their peers by re-explaining how to use the expanded form when multiplying. | | communicate, collaborate,  critical thinking,evaluate, leverage, create |
| **Differentiation** | | |
| **Adaptations:**   * For any student needing adaptations, present the base tens blocks for modeling. If the concept is too challenging, have them practice their basic multiplication facts by playing a card game where they take two single digit numbers and multiply them to find a product. Multiplication charts may be required. * Provide a multiplication chart or calculator if required. * **Replay** the screencast,[**Multiplication Strategies**](https://www.youtube.com/watch?v=uQ41MtcKnwk)(slide 3)as often as needed; especially for those who are close to ‘getting it’. | **Enrichment:**   * Ask partners to choose 3 cards from a deck. These cards will become the two numbers students expand then multiply together to find a product. * Present a challenging question like number 6 on page 292, **without** providing them the ‘step by step’ procedure to follow. * Some may want to create their own word problems to present to others **if** all tasks presented have been completed successfully. | |
| **Assessment:**  Eventually, use question 6 on page 292 as a **mini assessment**.  Let students **collaborate** and problem solve with a partner if it is too challenging. Record any concerns or difficulties they encounter and adjust your instruction accordingly. | | |
| **Teacher Reflection:**  Have students work together as these multiplication strategies can be daunting concepts for some.  Keep a record of the multiplication strategies investigated to date. Determine, through observation and class work which students can successfully use all strategies and which students had difficulty understanding the multiplication strategies. This will further inform the direction of your instructional practices.  Learning multiplication strategies take time and practice; allow your students the time to build, draw and explain their thinking out loud. **Replay** the Multiplication Strategies screencast as often as needed. | | |

Practice Activity: Use base ten blocks if needed.

**Step 1** Write 34 in expanded form.

34 = \_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_

**Step 2** Multiply the number of tens in *Step 1* by 8.

\_\_\_\_\_\_\_\_\_ × 8 = \_\_\_\_\_\_\_\_\_

**Step 3** Multiply the number of ones in *Step 1* by 8.

\_\_\_\_\_\_\_\_\_ × 8 = \_\_\_\_\_\_\_\_\_

**Step 4** Add the products in *Steps 2* and *3*.

\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_

**Step 5** Is 34 × 8 the same as 240 + 32? \_\_\_\_\_\_\_\_\_  
Explain how you know.

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| **Lesson 3: Using Models to Multiply**  Use Base Ten Blocks when they help.  1. Multiply.  a) 37 b) 28 c) 33  × 3   × 5  × 9  d) 43 e) 25 f) 79  × 7   × 8  × 9  2. There are 28 pencil crayons in a package. How many pencil crayons would there be in 6 packages?  3. How much greater is 8 × 34 than 7 × 34?  How do you know? |

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| **Other Strategies for Multiplication**  Use Base Ten Blocks when they help.  1. Find each missing number.  a) 83 × 5 = (80 × \_\_\_\_) + (3 × 5)  b) 34 × 9 = (\_\_\_\_ × 9) + (4 × 9)  c) 27 × 3 = (20 × \_\_\_\_) + (7 × \_\_\_\_)  2. Multiply.  a) 45 × 3 b) 61 × 8 c) 35 × 2 d) 52 × 6  3. Each package has 36 buttons.  How many buttons are there in 6 packages? |