

**Lesson Plan Template for Elementary Field Experience**

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Grade Level: 4th
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**Topic:** Multiplying numbers using partial product method

**Essential Questions:** (What question(s) will students grapple with as they learn through this lesson?)

* How does partial product method work?
* How are traditional method and partial product method related?

**Primary Content Objectives:**

Students will **know:** (facts/information)

* There are several strategies for multiplying.
* Partial product method is one of the multiplication strategies.
* Know the key terms (factor, product, and partial) for this lesson.

Students will **understand**: (big ideas)

* Understand that they will get the same results regardless of which multiplication strategy they use.

Students will be able to **do:** (skills and behaviors)

* Solve single-step and multistep multiplication problems using partial product method.
* Define the key terms (factor, product, and partial).

**Related state or national standards:** (Examples include State Standards of Learning, Common Core State Standards, Next Generation Science Standards or National Curriculum Standards for Social Studies)

VSOL 4.4 The student will

b)  add, subtract, and multiply whole numbers;

d)  solve single-step and multistep addition, subtraction, and multiplication problems with whole numbers.

**Assessment: (**How (and when) will students be assessed? What evidence will you collect to determine whether students have met the lesson objectives? Will the assessment(s) be a pre-assessment (diagnostic), formative (ongoing feedback) or summative?)

* **Pre-assessment:** This will be the second lesson on multiplication. During the first lesson, students will take a pre-assessment and learn the traditional method. The 4 groups for this lesson will be determined based on the pre-assessment results. A pre-assessment will not be necessary since teacher is only introducing a different strategy for multiplication rather than the concept.
* **Formative assessment:** Throughout the lesson, the teacher will be assessing students informally through observations. Watch for participation during ongoing class discussions to see if they are correctly following the steps of partial product method. Provide them with specific feedback on their responses and ask questions such as: “What is the expanded form of 367? How would you solve 24 x 2 using the traditional method? Partial product method?” After instructions in the beginning, students will practice this method in groups during the puzzle activity. Each student is expected to bring their problem and answer to a teacher. Teacher will constantly check their work, evaluate, and create a differentiated lesson on the areas of improvement.

**Materials and Resources:**

* Puzzle pieces in 4 different colors (cartoon character in the front; math problems in the back)
* Small white boards
* Dry-erase markers
* Math notebooks

**Key Vocabulary and Definitions:**

* **Factor**: One of two or more expressions that are multiplied together to get a product.
* **Product**: The result of two numbers being multiplied together.
* **Partial**: Part of

**Lesson Procedures:**

1. **Introduction and goal orientation:**

Teacher will be instructing students in a whole group setting and it is the second lesson on multiplication. Say, “We looked at the traditional way to multiply multi-digit numbers yesterday. With this lesson, I would like to expand your knowledge and introduce another great multiplication strategy called the partial products method. Remember, you are going to learn this method, master it, and then decide which strategy works better for you. I just want you to be aware that there are multiple ways to find the product of a number equation.  [3 min]

1. **Connecting to prior knowledge and experiences: (Questions or activities that help students make links)**

Say, “Before we jump right into the new method, I want to review the traditional method that we learned yesterday.” Write a problem on the board and ask students to solve in their math notebook. Call on a student to share his/her answer. Say, “Great! Traditional method is a great multiplication strategy but it may not be the best method for you. So, I’m going to introduce the partial product method.When using this strategy, you will want to remember two things: make sure you are adding all the partial products and numbers together correctly and make sure you are using the correct place value–align your numbers exactly!  This is the key to successfully using this method. This approach allows you to break the multi-digit number into smaller chunks, multiply them separately, and then add the chunks all together. The number will not seem quite so big this way! You worked with expanded form last week when we learned place value, so this should seem familiar to you.” [7 min]

1. **Tasks and activities: (What challenging tasks and activities will students engage in as they construct knowledge, learn new skills or behaviors and develop understandings?)**

Write a problem on the board and ask, “What is factor? What is product? What does partial mean?” Potential responses may be, “Product means multiply!” “partial means not whole!” Explain the key terms and clarify any confusion. Say, “Partial means part of and when we use this method, we are breaking the numbers or factors into smaller chunks. But we are working with a smaller part first before we put the factors all together to find the product. So, what do I do first? When multiplying with multi-digits, the first thing we want to do is use expanded form to break down the numbers or factors into smaller chunks. This helps us do one piece at a time. Do you guys remember how you write a number in expanded form?” Call on a student. Students are expected to already know how to write a number in expanded form from the previous lessons on place value. Say, “For example, let’s break down the top number in this number sentence: 543 can be expanded to 500 + 40 + 3. You will want to set up the problem vertically and make sure to include the bottom number with each chunk of the expanded number.” Write the problem vertically on the board so students get an idea what you’re talking about. “Do the work of multiplying each chunk. Now you will add all the chunks or partial products together. Make sure you are aligning the numbers with the correct place value spacing.” Write out each step on the board.

Say, “Now, you will practice more problems in groups. We will have four groups. [Groups will be predetermined.] Each group will get 35 puzzle pieces that have multiplication problems on the back. You will work on these problems with your teammates to complete your puzzle. Each person will get one puzzle piece at a time and when you solve it, show your answer to a teacher. If it’s correct, you will stick your puzzle piece in the appropriate place on the board and get the next puzzle piece. Each person will get the same number of problems but once you’re done with all your problems, you can help your teammates. This is not a race or competition so please, don’t brag about how fast your team is going. This activity is meant for practice so we can all get better at multiplication.” [40 min]

1. **Closure: (How will you wrap up the lesson and reinforce key ideas? Closure may include some form of assessment or exit slip)**

Say, “Nicely done guys! I really like how you collaborated and completed your puzzles! So, what were the two important steps to partial product method again?” Take responses from students. Say, “You should ask yourself these questions: Did you add all the parts? Are your place values aligned correctly? [4 min]

**Differentiation:** How will you modify the content (what is learned), the process (how the content is mastered) or product (how the learning is observed and evaluated) to support diverse learners? Describe additional supports that can be used for re-teaching if needed, and a challenging extension for students for demonstrate mastery quickly or show evidence of a lot of prior knowledge.

**High-achieving students:** Even though each student will get the equal number of multiplication problems, they are most likely to end up finishing early and helping their struggling teammates. This offers the opportunity to strengthen their skills through teaching.

**Low-achieving Students:** Similarly, struggling students will receive assistance from teacher as well as their teammates. Teacher can also provide math manipulatives such as color counters that will visually support their understanding. Also, the “Area Model” (another model of multiplication which also represents partial products) can be introduced to the visual learners.