

Lesson: Multi-Digit Multiplication

Common Core Standard: 4.NBT.B.5

A. GRADE LEVEL: 4th–5th Grade

B. SUBJECT: STEM/Mathematics

C. DATE: [Insert Date]

D. DURATION: 3 Days

E. LESSON FOCUS: Mastering multi-digit multiplication by 2-digit numbers through understanding the standard algorithm and applying the skill to real-world scenarios.

F. MATERIALS:

- Graph paper
- Whiteboard and markers
- Worksheets with multi-digit multiplication problems
- Real-life problem scenarios (e.g., project material lists)
- Calculators (for verification only)
- Visual aids (e.g., area models)

G. LESSON OBJECTIVES:

- Understand and apply the standard algorithm for multi-digit multiplication by 2-digit numbers.
- Solve real-world problems requiring multi-digit multiplication.
- Verify answers using estimation and alternative strategies.

H. PROCEDURES:

1. INTRODUCTION: (Day 1)

- Begin with a review of single-digit multiplication and multi-digit multiplication by a 1-digit number.
- Discuss the importance of multi-digit multiplication in real-world situations (e.g., budgeting, scaling).
- Introduce the day's objective: learning to multiply multi-digit numbers by 2-digit numbers using the standard algorithm.

2. EXPERIMENT: (Days 1–2)

- **Demonstration:** Solve an example problem (e.g., 234×12) step-by-step using the standard algorithm on the board.
- **Guided Practice:** Students practice problems with teacher assistance.
- **Alternative Strategies:** Introduce the area model for multiplication as a visual aid.

3. OBSERVATION: (Day 2)

- Students work in pairs to solve problems using the standard algorithm and the area model.

- Observe student understanding and provide feedback or reteaching as necessary.

4. GENERALIZATION: (Day 3)

- Provide real-world scenarios, such as calculating materials for a group project.
- Have students apply multi-digit multiplication to solve these scenarios, emphasizing the practical applications of the skill.

5. ASSESSMENT:

- Evaluate student performance through:
 - Worksheets with varying difficulty levels of multi-digit multiplication problems.
 - Word problems requiring real-world application.
- Provide a short quiz at the end of Day 3 to assess mastery.

Note 1: Safety

No specific safety concerns are associated with this lesson. Encourage students to handle materials, such as calculators and graph paper, responsibly.

Note 2: Accommodation for ELL, ESE, etc.

- Provide visual aids and step-by-step instructions for ELL students.
- Offer manipulatives or number grids for students who need additional support.
- Allow extra time for ESE students and encourage peer collaboration to support understanding.