Ms. Jimenez **Subject:** Mathematics **Lesson:** 3.6 - Multiplying Using Expanded Form

Standards: 4.NBT.B.5 - Multiply a whole number of up to four digits by a one-digit whole number, using strategies based on place value and the properties of operations.

Objective: Students will use expanded form to multiply a multi-digit number by a 1-digit number.

Materials:

- Whiteboard and markers
- Visual organizer (expanded form chart)
- Go Math workbooks
- Multiplication worksheet
- Chromebooks with access to Google Slides, IXL, and Jamboard for interactive practice

Lesson Outline:

Opening Task:

1. **Discussion Prompt**: Write the word "**expand"** on the board. Ask students, "What do you think of when you see this word?"
2. **Turn and Talk:** Students will turn to a partner and discuss their ideas. After a brief discussion, pairs will share their response.
3. **Google Slides**: Show examples on Google Slides that demonstrate "expanding" numbers and breaking them into parts for easier multiplication
    a. Explain that expanded form is like "breaking down" large numbers.

Introduction:

- **Objective Statement**: "Today, you will learn how to use expanded form to solve multiplication problems with a multi-digit number and a one-digit number."

Activities:

1. Teacher-Led Instruction

- **Review of Expanded Form**: Start by reviewing the concept of expanded form and demonstrate how to expand a multi-digit number by breaking it down by place value (ex: 345 becomes 300 + 40 + 5).
- **Demonstrate Multiplication with Expanded Form**: Show how to use expanded form to multiply a multi-digit number by a one-digit number.
    - Example 1: Multiply 345 by 6.
        - Break down 345 into 300 + 40 + 5.
        - Multiply each part by 6: (300 × 6, 40 × 6, 5 × 6).
        - Add the partial products to find the answer (1,800 + 240 + 30)

- **Modeling with Examples**: Solve two examples on the board, showing each step clearly and asking students to follow along on their white board.
- **Digital Example**: Share a step-by-step example on a Google Slide that students can reference from their devices, with each step of the example problem broken down visually.
    - **Backup plan:** If the digital example is not available, teacher will demonstrate an example on the white board.

2. Guided Practice

- **Practice Examples on Jamboard**: Begin by solving an example as a class
    - **Digital Practice**: Share a Jamboard so students can work in pairs on problems. They can use the text and drawing tools to show their work
        - **Backup plan:** If Jamboard is unavailable, students will be able be presented with the example on a google slide instead.
- **Independent Practice in Go Math Books**: Students will solve problems on page 108 - 109 independently in their Go Math books, using expanded form to multiply.
    - Students who complete the problems in the workbook page can log in to IXL and complete interactive multiplication skill assigned.
        - **Backup plan:** If IXL is unavailable, students will solve problems in their math notebook.

3. Small Group Instruction

- Students who need additional assistance based on observation during guided practice and pull will be pulled into a small group. During the small group, parts of the lesson will be retaught, in order to complete a practice problem, step by step.

Summary:

- **Lesson Recap**: Ask students to summarize the steps for using expanded form in multiplication. Encourage students to share their thoughts on why this method might make multiplication easier.

Homework:

- **Worksheet:** Use expanded form to multiply multi-digit numbers by one-digit numbers.
- **IXL Practice**: Assign additional IXL practice problems on expanded form multiplication for homework or extra practice.

Formative Assessment:

- **Teacher Observation**: Observe students during guided practice and independent work to assess their understanding.
- **Student Participation**: Monitor participation in group discussions
- **Exit Ticket on Google Forms**: At the end of the lesson, have students solve a short multiplication problem (e.g., 432 × 5) using expanded form and submit their answer through Google Forms.

    - **Backup plan:** If Google Form is not working, students will solve the problem on paper.
- **IXL**: Check IXL scores to gauge individual progress.

Reflection

The technology usage incorporated in this lesson were chosen to enhance student learning experiences. The tools can be accessed by students inside and outside of the classroom which is a great resource for independent practice. Furthermore, these tools are interactive which keep students engaged and actively involved in the lesson. Each step of the lesson aligns with the lesson objective. I decided to use Google slides throughout the lesson because it allows visual demonstration of the complex concepts, such as breaking down numbers into parts. Creating Google Slides also allows students to revisit slides while working independently, reinforcing the skill. Next, using Jamboard fosters collaboration and interactive practice. This tool allows students to directly solve the problem in real-time. Students are able to rearrange numbers, erase errors, collaborate with peers and add sticky notes that could contain previous examples, as needed. The use of IXL provides students with personalized practice. IXL is a great technology resource to use, especially during math, because it gauges students' level. The difficulty of practice problems adjust based on student performance. When students answer a problem incorrectly, IXL provides detailed explanations of the errors and demonstrates how to solve correctly. Also, students can track their progress as they work, which can serve as a source of motivation. Lastly, using a google form is a quick and organized way to assess student understanding. Google Forms allow for immediate insight on student understanding which helps teachers identify any misconceptions. The tools used in this math lesson are easily accessible for teachers, require minimal time to create or assign and enhance student learning and engagement.