Lesson Plan: Growing Place Value Understanding Through Enhanced Counting Routines

Lesson Overview

Teacher: Chloe Plume

Subject: Mathematics - Place Value & Operations

Grade Level: 3rd Grade

Duration: 30 Minutes

Standard(s): 3.NBT.A.2 (Fluently add/subtract within 1,000 using place value strategies); 3.NBT.A.3 (Multiply one-digit whole numbers by multiples of 10).

Materials List

- Place value disks (Hundreds, Tens, Ones)
- Individual dry-erase board and markers
- "Zero Hero" Badge or Sticker
- 3 Clear plastic "pockets" or bowls labeled H, T, and O
- Play money (specifically 100-coin bills and 10-coin bills)
- Exit Ticket slip

Learning Objectives

- **I can** skip-count backward across hundreds (e.g., 310 to 290) to show I understand how hundreds and tens are related.
- **I can** "decompose" or break a hundred into 10 tens to solve subtraction problems with zeros.
- **I can** multiply a single digit by a multiple of 10 using my knowledge of "groups of ten."

1. Introduction (The Hook & Objective) - 3 Minutes

The Scenario: "Imagine you are at the 'Epic Toy Store' and you want to buy a Legendary Dragon that costs 167 coins. You reach into your pocket and pull out five 100-coin bills. You have 500 coins! But wait... the cashier says, 'I can't take these big bills unless you have some smaller coins for exact change.' You look at your 'tens' pocket—it's empty. You look at your 'ones' pocket—it's empty! Does this mean you're broke? No! You're just **Zero-Locked**."

The Goal: "Today, we are becoming **Zero Heroes**. We are going to learn how to break into those big hundreds to fill up our empty tens and ones pockets so we can buy that dragon!"

2. Body: Enhanced Counting Routine - 7 Minutes

This section focuses on the "Counting Around a Circle" and "Decomposition" routines.

Counting Around the Circle: We will stand up and move in a small circle (even if it's just teacher and student!).

- **Forward:** We will count by 10s starting at 80. (80, 90, 100, 110...). *Stop at 130.*
- **Backward (The Challenge):** We will count backward by 10s starting at 1,000.
  Teacher: "1,000." Student: "990." Teacher: "980."
- **The "Bridge" Question:** When we went from 1,000 to 990, what happened to that thousand? (Answer: We broke it into 10 tens and took one away!)

Decomposition Challenge: "I have 1 Hundred disk. If I want to trade this for Tens, how many do I get?" (10). "If I have 3 Tens, and I want to multiply them by 4, how many Tens do I have now?" (12 tens). "How much is that in total?" (120).

3. Modeling: "I Do" - 5 Minutes

Teacher Action: Set up the problem 500 - 167 on the board using the "Pockets" (H-T-O).

Talking Points: "I have 5 Hundreds, 0 Tens, and 0 Ones. I need to take away 7 ones. I can't! My ones pocket is empty. I check my tens pocket. It's empty too! I am Zero-Locked. Watch how I act like a Zero Hero. I'm going to take 1 Hundred from the hundreds pocket. Now I have 4 hundreds. I trade that 1 hundred for 10 tens. Now I have 10 tens! But wait... my ones pocket is still empty. I'll take 1 ten (leaving 9) and trade it for 10 ones. Now I can subtract!"

Demonstration: Show the vertical subtraction alongside the physical disks so the student sees 500 become 4 hundreds, 9 tens, and 10 ones.

4. Guided Practice: "We Do" - 5 Minutes

Task: Solve 400 - 123 together.

Activity: 1. Student places 4 hundred-disks in the H pocket. 2. Teacher asks: "Can we take 3 ones away?" (No). 3. Student performs the trade: "I'm breaking a hundred into 10 tens." 4. Student performs the second trade: "I'm breaking a ten into 10 ones." 5. Together, we subtract the ones, then tens, then hundreds.

Check for Understanding: "Why did the tens place become a 9 and not stay a 10?" (Because we had to give one ten to the ones pocket!).

5. Independent Practice: "You Do" - 7 Minutes

The Legendary Toy Challenge: The student must solve three "Store Quests" on their white board.

1. **The Shield:** Costs 242 coins. You have 600. Solve 600 - 242.
2. **The Bulk Buy:** You want to buy 4 "Power Potions." Each costs 30 coins. How many coins total? (4

x 30). *Hint: Think 4 groups of 3 tens!*
3. **The Error Trap:** Look at this problem: 300 - 145 = 265. Is this right? If not, fix the Zero Hero's mistake!

6. Conclusion & Exit Ticket - 3 Minutes

Recap: "Today we learned that zeros aren't 'nothing'—they are just placeholders waiting for us to bring some value over from the next pocket. We learned that 10 tens make 100, which helps us count and multiply faster!"

EXIT TICKET (Qualitative Data)

1. On a scale of 1-5 (1 being a tiny mouse, 5 being a giant dragon), how confident do you feel "breaking" a hundred into tens? _____

2. What was the hardest part of being a 'Zero Hero' today?

3. Solve: $7 \times 20 =$ _____

Differentiation & Adaptations

- **Scaffolding (Struggling):** Keep the place value disks out for the entire lesson. Use a color-coded place value chart (Green for Hundreds, Blue for Tens, Red for Ones).
- **Extension (Advanced):** Ask the student to subtract from 1,000 (regrouping across three zeros) or solve a multiplication problem like 12×40.
- **Kinesthetic:** Have the student physically "jump" across the floor for every hundred reached during the counting routine.

Success Criteria

- Student can explain that "borrowing" is actually "trading" or "decomposing" values.
- Student successfully solves the subtraction across zero with 90% accuracy (Independent Practice).
- Student identifies that 4×30 is the same as 4 x 3 tens (120).