Lesson Plan: Growing Place Value Understanding Through Explicit Instruction

Student: Chloe Plume

Grade Level: 3rd Grade

Date: 3/3/26 (Day 2 of Week 3 Intervention)

Subject: Mathematics - Place Value & Subtraction across Zeros

Arkansas Academic Content Standards

- **3.NBT.A.2:** Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Learning Objectives

- **Understanding:** I want students to understand THAT mathematicians use place value, grouping, and structure to choose efficient strategies when solving real-world problems.
- **Skill (Do):** Fluently skip-count across hundreds (e.g., 290 to 310) to identify the relationship between 10 tens and 1 hundred.
- **Skill (Do):** Identify and correct errors in subtraction problems involving "borrowing" across zeros.
- **Skill (Do):** Accurately solve a subtraction problem from 1,000 with 90% accuracy.

Materials & Resources

Student Materials	Teacher Materials
• Base-ten blocks (flats, skinnies, bits) • "Zero Hero" Place Value Mat • Dry-erase board and markers • “The Great Exchange" game cards • Magnifier (as needed for accessibility)	• Large magnetic base-ten blocks • Document camera • "Mission: Possible" Exit Tickets • Vocabulary Word Wall Cards

Vocabulary Wall

(Discuss and add these during the lesson)

- **Place Value:** The value of where a digit is sitting.
- **Regrouping:** Trading groups of ten for one of the next biggest value.
- **Decomposition:** Breaking a big number into smaller, friendlier pieces.
- **Efficiency:** Finding the smartest, fastest way to solve a problem without making mistakes.
- **Equal groups:** Groups that have the exact same amount.
- **Repeated addition:** Adding the same number over and over.
- **Inverse operations:** Opposite operations that "undo" each other (like addition and subtraction).

Lesson Procedures

1. Introduction: The Hook & Schema Activation (5 Minutes)

The Scenario: "Imagine you are at a store and you want to buy a legendary toy 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 the 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.**'"

Goal Statement: "Today, Chloe, we are going to become **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 solve any subtraction problem, even when there are zeros in the way!"

Learning Goal (Choral Read): "I can explain why we regroup across zero placeholders using place value language."

2. Modeling: "I Do" (10 Minutes)

Enhanced Counting Routine: We will count backward from 1,000 by 10s. The goal is to notice what happens to the hundreds place every time the tens place hits zero.

- **Teacher starts:** "1,000... 990... 980..."
- **Student continues:** "970... 960... 950..."
- **Stop at 900:** Ask: "To get to 890, what did we have to do to that 900? Did we just lose a ten, or did we have to 'break' a hundred?"
- **Explanation:** "Every time we pass a hundred, we are trading one 'flat' hundred for ten 'skinny' tens. We aren't losing money; we are just changing the shape of it!"
- **Challenge:** Count backward by 10s from 500 to 380 as fast as possible.

3. Guided Practice: "We Do" (15 Minutes)

Using the "Zero Hero" Mat: We will solve 400 - 123 together using base-ten blocks.

- **Step 1:** Place 4 flats (hundreds) on the mat. "Can we take away 3 ones? No, the ones pocket is empty!"
- **Step 2:** "Can we borrow from the tens? No, the tens pocket is empty too!"
- **Step 3:** "We must go to the hundreds. Let's trade 1 hundred flat for 10 skinny tens." (Physically move blocks).
- **Step 4:** "Now, can we help the ones? Yes! Trade 1 skinny ten for 10 small ones."
- **Check for Understanding:** Thumbs-up/Thumbs-down check: "Do we still have 400 total blocks on the mat, even though they look different?"

4. Collaborative/Active Learning: "You Do It Together" (15 Minutes)

Game: "The Great Exchange"

- **Activity:** Chloe and the teacher (or a partner) take turns drawing "Purchase Cards" (e.g., "Buy a Dragon for 245 coins").
- **The Rule:** You start with exactly one 1,000-block. For every purchase, you must physically exchange the blocks on the mat and record the new total on a dry-erase board.
- **Discussion:** "Was it faster to count back by hundreds or to use the regrouping strategy? Why?"

5. Independent Practice: “You Do It Alone” (10 Minutes)

Activity: "Find the Flaw"

- I will show Chloe three subtraction problems solved by a "clumsy robot." One is correct, two have "zero-lock" errors (where the robot forgot to change the hundreds place when borrowing).
- **Task:** Chloe must circle the errors and use her "Zero Hero" skills to fix them.

6. Conclusion & Assessment (5 Minutes)

Recap: "What is the secret to unlocking a zero in the tens place?" (Answer: Trading a hundred for ten tens).

Summative Assessment: "Mission: Possible" Exit Ticket

- **Problem:** Solve 1,000 - 452.
- **Writing Prompt:** Write one sentence explaining how you "unlocked" the zeros to reach the ones place.

Success Criteria

- I can trade a hundred flat for ten tens without changing the total value.
- I can solve subtraction problems starting with 1,000 with 90% accuracy.
- I can explain that "regrouping" is just a "fair trade."

Differentiation Strategies

- **Scaffolding (Ready/SPED):** Use a color-coded place value mat (Hundreds=Blue, Tens=Red, Ones=Green) to match the base-ten blocks.
- **Extension (GT/Advanced):** Ask Chloe to solve a subtraction problem with a decimal (e.g., $10.00 - $4.52) and explain if the "Zero Hero" rules still apply.
- **Visual/Kinesthetic:** Use the document camera to project the "Great Exchange" so Chloe can see the physical trades magnified.
- **Choice:** Chloe can choose to record her final answer via a video explanation or by writing it on her dry-erase board.