

Lesson Plan: Zero Heroes - Mastering the Great Exchange

Subject: Mathematics / Place Value & Subtraction

Student: Chloe Plume

Grade Level: 3rd Grade

Date: March 3, 2026 (Day 2 of Week 3 Intervention)

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 (Student-Friendly)

- I can explain why we need to trade "hundreds" for "tens" when subtracting across zeros.
- I can skip-count backward across hundreds (like 310 to 290) to show I understand how numbers are built.
- I can find and fix mistakes in subtraction problems where someone forgot to "borrow" correctly.
- I can solve a subtraction problem starting from 1,000 with at least 90% accuracy.

Materials & Resources

- **Student Materials:** Base-ten blocks (1 cube/thousand, 10 flats/hundreds, 20 skinnies/tens, 20 bits/ones), "Zero Hero" Place Value Mat, dry-erase board and markers, "The Great Exchange" challenge cards.
- **Teacher Materials:** Large magnetic base-ten blocks or digital document camera, "Find the Flaw" error cards.

I. Introduction: The Hook & The Problem (5 Minutes)

The Scenario: "Chloe, imagine you're at the Galactic Toy Store. You found a legendary robot that costs 452 coins. You reach into your pocket and pull out one giant 1,000-coin bill. You feel rich! But then, the cashier says, 'I can't take this! I need hundreds, tens, and ones to make change, and my register is empty.' You look at your 1,000-coin bill... it has three zeros. You're 'Zero-Locked'!"

The Objective: "Today, we aren't just doing math; we are becoming **Zero Heroes**. We are going to learn how to 'break' that big 1,000 into smaller groups so we can buy anything we want. By the end of this, you'll be able to unlock any zero in your way."

Vocabulary Check: We will use our math words today: *Place Value, Regrouping, Decomposition, Efficiency, Equal Groups, Repeated Addition, and Inverse Operations*. (Add these to the Vocabulary Wall as they are used).

II. Body: The "I Do, We Do, You Do" Model

1. "I Do": The Enhanced Counting Routine (5 Minutes)

The Goal: Building fluency across the "hundreds" barrier.

- **Teacher Action:** "Watch me. I'm going to count backward from 1,000 by 10s. Listen to what happens when I hit a hundred."
- **Model:** "1,000... 990... 980... 970..." (Stop at 900). "To get from 1,000 to 990, I had to 'decompose' or break that thousand into 10 hundreds, then trade one hundred for 10 tens. I can't just lose the numbers; they just change shape!"

2. "We Do": The Counting Circle & Base-Ten Build (10 Minutes)

- **Counting Challenge:** "Let's count together from 510 backward by 10s. When we hit a hundred (500, 400), we're going to clap to show we 'broke' a hundred."
- **The Build:** Use the "Zero Hero" Place Value Mat.
 - "Let's represent 1,000. It's one big cube. If I need to take away 1 ten, what do I do?"
 - **Guided Action:** Have Chloe trade the 1,000 cube for 10 flats (hundreds). Then trade 1 flat for 10 skinnies (tens).
 - **Question:** "Is it still 1,000 total pieces? Yes! It just looks different. This is *Decomposition*."

3. "You Do Together": The Great Exchange (10 Minutes)

(In a classroom, this is partners. In homeschool, the teacher/parent acts as the 'Banker'.)

- **The Game:** Give Chloe a challenge card (Example: $1,000 - 452$).
- **Step 1:** She must "unlock" the zeros on the mat by physically trading the blocks with the Banker.
- **Step 2:** She explains the trade: "I am trading 1 hundred for 10 tens so I have enough to give you 5 tens."
- **Success Criteria:** Chloe must move the blocks correctly before writing the numbers.

4. "You Do Alone": Find the Flaw (10 Minutes)

The Task: Give Chloe three subtraction problems that are solved incorrectly (e.g., someone subtracted $0 - 2$ and wrote "2" instead of regrouping).

- **The Mission:** "You are the Math Detective. Find where the 'Zero Villain' messed up. Circle the mistake and solve it correctly using your 'Zero Hero' strategies."
- **Rigorous Check:** She must solve $1,000 - 638$ independently on her whiteboard.

III. Conclusion: Closure & Recap (5 Minutes)

- **Summarize:** "Today, we learned that zeros aren't 'nothing'—they are just placeholders waiting for us to trade bigger values into them."
- **Recap:** Ask Chloe: "If I have 0 tens but I need to give you 3, where do I have to go to get them?" (Answer: The hundreds place).
- **Success Criteria Check:** Did we skip-count? Did we fix the flaws? Did we solve the 1,000 challenge?

IV. Assessment

- **Formative Assessment (During Lesson):** "Thumbs-up/Thumbs-down" check during the counting routine; observation of block placement on the "Zero Hero" mat.
 - **Summative Assessment: "Mission: Possible" Exit Ticket.** Chloe must solve $1,000 - 452$ on a slip of paper. Below her answer, she must write one sentence explaining how she "unlocked" the zeros. (Goal: 90% accuracy).
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V. Differentiation & Adaptations

- **Scaffolding (Struggling):** Use a color-coded place value mat where the Hundreds are blue, Tens are green, and Ones are yellow to match the blocks.
- **Extension (Advanced):** "The Millionaire Challenge"—Ask Chloe how she would regroup if the number was 10,000 instead of 1,000. Does the pattern stay the same?
- **Multi-Sensory:** The lesson uses auditory (counting), visual (mats/blocks), and kinesthetic (trading blocks) methods.