

Place Value Power: Multiples, Movements, and Magic Numbers

Lesson Overview

Subject: Mathematics (Number and Operations in Base Ten)

Target Age: 9 Years Old (3rd/4th Grade)

Duration: 30 Minutes

Learning Objectives:

- Multiply one-digit whole numbers by multiples of 10 (10–90) using place value strategies.
- Identify and represent 4-digit numbers as thousands, hundreds, tens, and ones.
- Connect skip-counting patterns to multiplication and regrouping.
- Identify patterns in digit changes when adding or subtracting across place values.

Materials Needed

- Math Journals and pencils
- Whiteboard or Projector (for visual slides)
- Open floor space for movement
- "Mrs. R's" Pre-printed Exit Ticket half-sheets
- Visual Array Chart (10x10 grid or base-ten blocks)

1. Introduction: The Power of the Connection (3 Minutes)

Setting: Students are sitting on the carpet with math journals closed and pencils tucked inside.

The Hook: "Imagine you have a small superpower—like the ability to jump 5 feet. Now, imagine you find a 'Power-Up' that multiplies your jump by 10. Suddenly, you're jumping 50 feet! Today, we are going to find the secret **CONNECTION** between simple counting and massive numbers."

Keyword Focus: Discuss the word **CONNECTION**.

- "*Connection*" means how two things talk to each other. How does skip-counting 'talk' to multiplication? How does '10 tens' talk to the number 100?

Turn & Talk: "With your elbow neighbor, name one thing in real life that comes in groups of 10. (Example: Toes on two feet, dimes in a dollar)."

2. I Do / We Do: Pattern Detectives (9 Minutes)

Setting: Seated on the rug with journals open.

The "I Can" Statement: Write this together in the journal: "*I can use patterns to multiply by tens and build 4-digit numbers.*"

Visual Modeling (I Do): Project a slide showing an array of 3 rows of 40 dots. "If I skip-count 4, 8, 12... that's easy. But what if I skip-count 40, 80, 120? Look at the digits. The '4-8-12' pattern is still there, but it shifted over one place value! When we have 10 hundreds, they join together to form a brand new 1,000."

Guided Practice (We Do): "In your journal, let's draw a quick place value house for the number 1,250.

- How many thousands? (1)
- How many hundreds? (2)
- How many tens? (5)
- How many ones? (0)

What happens if we add 50 more? Our tens digit wants to change, but it hits a limit (10 tens), so it 'regroups' or pushes into the hundreds place!"

Turn & Talk Slides: Show Slide 1: $\$6 \times 10\$$ vs $\$6 \times 20\$$. Show Slide 2: $\$400 + 600\$$. "Discuss with your partner: What happens to the digit in the hundreds place when we add $\$400 + 600\$$?"

3. You Do: The Place Value Jump (13 Minutes)

Setting: Students stand up and move to the center of the room.

Activity 1: Side-to-Side Logic "The left side of the room is the '**Greater Than 500**' zone. The right side is the '**500 or Less**' zone."

- **Call out:** $\$7 \times 80\$$. (Students move to the left: 560). "*How do you know?*" (Student: "7 times 8 is 56, so 7 times 80 is 560!")
- **Call out:** $\$4 \times 90\$$. (Students move to the right: 360).
- **Call out:** $\$1,000 - 600\$$. (Students move to the right: 400).

Activity 2: Stand or Sit (The Count Around Circle) Students return to their spots on the rug but stay standing. "I will call out a math story. If the answer has a **thousand** in it, stay standing. If it is **less than a thousand**, sit down!"

- **Call out:** "You have 9 hundreds and you add 2 more hundreds." (Stay standing - 1,100).
- **Call out:** "You multiply $\$9 \times 10\$$." (Sit down - 90).
- **Call out:** "You have 800 and you add 20 tens." (Stay standing - 1,000).

Deep Thinker Question: "Can any of these numbers be regrouped? If I have 12 tens, what does that become?" (1 hundred and 2 tens).

4. Closure & Exit Ticket (4 Minutes)

Recap: "Today we learned that multiplication is just skip-counting with a 'Place Value Power-up.' We saw how 10 hundreds magically become 1,000 and how to spot patterns in digits."

Exit Ticket (Mrs. R's Half-Sheet):

1. Solve: $5 \times 60 = \underline{\quad}\underline{\quad}\underline{\quad}$
2. Write the number 4,302 in expanded form (Thousands + Hundreds + Tens + Ones).
3. Pattern Challenge: If I count by 30s (\$30, 60, 90...\$), what is the next number and why?

Adaptations & Differentiation

- **For Struggling Learners:** Provide a "Multiplication Cheat Sheet" (1-9) so they can focus on adding the zero for the tens place value rather than basic fact recall. Use physical base-ten blocks to show the regrouping of 10 hundreds into 1 thousand.
- **For Advanced Learners:** Ask them to predict what 5×600 would be based on the patterns they saw today. Challenge them to find three different ways to regroup the number 1,200 (e.g., 12 hundreds OR 1 thousand and 20 tens).

Success Criteria

- Student can correctly solve $1 \times \text{multiple of } 10$ without using a calculator.
- Student can explain that 1,000 is the same as 10 hundreds.
- Student can identify that when adding tens, if the sum is over 9, the digit in the hundreds place must change (regrouping).