The Kingdom of Hundreds, Tens, and Ones (A Place Value Adventure)

Materials Needed

- Small, easily bundled items (e.g., craft sticks, dried beans, small stones, or standard Base Ten Unit blocks).
- Rubber bands or small strings for bundling Tens.
- Three small containers or cups labeled clearly: H (Hundreds), T (Tens), U (Units/Ones).
- Large, flat working space or tray.
- Paper and pencil/chalk.
- Index cards or sticky notes for writing numbers.

Learning Objectives

By the end of this lesson, learners will be able to:

1. Identify the three places (Units, Tens, Hundreds) in a number up to 999.
2. Explain the relationship between the places (10 Units = 1 Ten; 10 Tens = 1 Hundred).
3. Model and decompose (break apart) a three-digit number using concrete materials.

Success Criteria

You know you have mastered this lesson when you can:

- Build any three-digit number requested by the educator using the correct containers.
- Tell the educator how many Hundreds, how many Tens, and how many Units are in a number like 245.

Phase 1: Introduction (10 minutes)

The Hook: The Story of the Royal Accountants

Educator Talk: "Imagine we are the Royal Accountants for a very large kingdom! Our job is to count all the treasure the King and Queen have. But there are too many items to count just one by one! We need a magical, clever system to keep everything organized. This system is called 'Place Value,' and it helps us count quickly up to almost 1,000!"

Introducing the Three Containers

Educator Action: Present the three labeled containers (H, T, U).

Educator Talk: "Every number has a special home. We have three homes today, standing right next to each other:

1. The Unit House (U): This is for single, lonely items (our Ones).
2. The Ten House (T): This is a very neat house. You can only live here if you are a perfect bundle of 10!
3. The Hundred House (H): This is the biggest house, the home of the Royalty. You can only live here

if you are a perfect bundle of 10 of the Ten-bundles!

Transition: "Let’s meet the magical rule that lets things move house: The Rule of Ten."

Phase 2: Modeling and Guided Practice (I Do, We Do) (25 minutes)

I Do: The Rule of Ten Demonstration (Modeling)

Content Focus: The exchange rate (10-for-1).

1. **Units to Tens:** Educator takes 10 Unit sticks/stones and places them in the U container. "Wait! The Unit house is getting too crowded! The Rule says, 'When you have 10, you must move up!'"
2. **Exchange:** Educator takes the 10 Units out, bundles them tightly with a rubber band, and places the single bundle into the T (Tens) container. "See? 10 Units traded up to become 1 Ten. They have the same value, but the Ten is much neater."
3. **Tens to Hundreds:** Educator repeats this process, showing how 10 bundles of Tens are tied together to form one large bundle, which is then placed in the H (Hundreds) container. "10 Tens are too many for this cup! They trade up to become 1 Hundred."

Formative Assessment Check: Q&A: "If I have 5 bundles of Ten, how many Units do I have? (50)" "If I have 10 single items, where should they really live?" (In the Tens house, as a bundle.)

We Do: Building Numbers Together (Guided Practice)

Activity: The Number Dictation Game

Educator Action: Write a three-digit number on a card (e.g., 134).

1. **Read and Decompose:** "The number is 134. Let's say it the long way: 1 Hundred, 3 Tens, and 4 Units."
2. **Building the Units:** Learners count 4 single items and place them in the U cup.
3. **Building the Tens:** Learners place 3 bundles of Ten in the T cup. (Reinforce that 3 Tens = 30).
4. **Building the Hundreds:** Learners place 1 Hundred bundle in the H cup. (Reinforce that 1 Hundred = 100).

Practice Round: Repeat with 206 (emphasizing the empty Tens cup: "We have 2 Hundreds and 6 Units. How many Tens? Zero! The empty cup holds the place so we know the 2 means 200, not 20.").

Transition

"Now that we are experts at building the numbers, let’s see if we can read them when they are already built!"

Phase 3: Application and Independent Practice (You Do) (15 minutes)

Activity 1: The Mixer Challenge

Setup: The educator secretly places various bundles and units into the three cups (e.g., 3 H bundles, 5 T bundles, 2 U singles = 352).

Learner Action: The learner (H) must look at the containers and write down the number represented, then write its expanded form.

Example Prompt:

- How many are in the Hundred House? (3) Write '3' first.
- How many are in the Ten House? (5) Write '5' next.
- How many are in the Unit House? (2) Write '2' last.
- The number is 352.

Activity 2: Decomposition Drawing (Connecting Concrete to Abstract)

Goal: To show that the physical placement dictates the mathematical value.

Educator Prompt: "Draw the number 417."

Learner Action: The learner draws three simple boxes labeled H, T, U. They draw the representation inside:

- H Box: 4 large squares (representing 400)
- T Box: 1 stick or bundle (representing 10)
- U Box: 7 dots (representing 7)

Success Criterion Check: Does the learner correctly identify that the '1' in 417 is only worth 10 because of where it sits?

Phase 4: Conclusion and Assessment (10 minutes)

Closure: The Place Value Poem and Recap

Rhythmic Recap (Steiner element): Recite or clap a short rhyme focusing on the order:

> Start on the right, that’s where the Units stand,
> Next door are the Tens, a helpful counting band.
> Far on the left, the Hundreds stand so tall,
> Place value helps us count them all!

Summative Assessment: The Final Challenge

Task: The educator writes one final number on a card (e.g., 529). H must perform three actions:

1. Build the number using the physical materials and cups.
2. Write the standard number (529).
3. Write the expanded form (500 + 20 + 9).

Feedback: Provide immediate, specific positive feedback (e.g., "Excellent! You remembered that the 2 in 529 is actually worth twenty because it is in the Tens place!").

Differentiation and Adaptability

Scaffolding (Support for Struggling Learners)

- **Reduce the Load:** Temporarily remove the Hundreds cup and work only with two-digit numbers (up to 99) until the 10-for-1 exchange rule is absolutely solid.

- **Pre-Bundled Materials:** Ensure all Tens and Hundreds bundles are pre-made and easily identifiable to reduce the time spent on physical manipulation.
- **Visual Aids:** Use color coding for the cups and materials (e.g., green for Hundreds, yellow for Tens, blue for Units).

Extension (Challenge for Advanced Learners)

- **"Messy Math" Exchange:** Present the learner with an inefficient grouping (e.g., 14 Tens bundles and 12 Units singles). Task H with "cleaning up the inventory" by making all necessary exchanges and stating the final, standard number (152).
- **Expanding to Thousands:** Introduce a fourth, even larger container (Th - Thousands) and discuss the rule: 10 Hundreds bundles trade up for 1 Thousand.
- **Creative Storytelling:** Have the learner create a new rule for a different planet (e.g., "On Planet Zorp, the rule is 5! 5 Units make 1 Ten!"). Have them model numbers based on this new system.