

Expanded Form and Place Value

Summary

Students will explore place value with hands-on classroom activities.

Main Core Tie

Mathematics Grade 2

[Strand: NUMBER AND OPERATIONS IN BASE TEN \(2.NBT\) Standard 2.NBT.1](#)

Additional Core Ties

Mathematics Grade 2

[Strand: OPERATIONS AND ALGEBRAIC THINKING \(2.OA\) Standard 2.OA.1](#)

Mathematics Grade 2

[Strand: NUMBER AND OPERATIONS IN BASE TEN \(2.NBT\) Standard 2.NBT.3](#)

Materials

- *Anno's Magic Seeds*
 , by Mitsumasa Anno
- [Place Value Tents](#) (pdf)
 (made from cardstock)
 Math journal
 Pencil
- [Place Value Strips](#) (pdf)
 Dice--three per two students: red, white, and green

Additional Resource

Book

- *Anno's Magic Seeds*
 , by Mitsumasa Anno; ISBN 0-698-11618-6

Background for Teachers

This activity helps students to write numbers and understand place value up to 9,999.

Intended Learning Outcomes

3. Reason mathematically.
4. Communicate mathematically.
6. Represent mathematical situations.

Instructional Procedures

Invitation to Learn

Today students will become "doctors" of numbers. They will "operate" on numbers and take them apart to better understand how they work.

Instructional Procedures

Begin by passing out envelopes of *Place Value Tents*.

Teacher will say a number (start in the hundreds) and students must write the number in their journal (e.g., 372).

Students will use the *Place Value Tents* to make the number.

Pull the number apart and write the number in expanded form.

Ask students what they notice about the numbers.

Give students another number out loud (e.g., 4,906). Students write the number and show the number with their place value tents. Take the number apart and write the expanded form.

Ask the students to make their number ten more. They may check with their partner to see if they have the same number. Write it in expanded form.

Make the number 100 less, each time writing the number in expanded form. Ask students what connections they can make by making their number 100 more or less?

Make their number 1,000 more, 1,000 less. Notice if students start over each time or if they work with the number they already have set up.

Have students write the patterns and connections they found during the activity in their journal. Also have them explain how to add or subtract 100 from their number.

Read *Anno's Magic Seeds* by Mitsumasa Anno. Have the students use their journal and Place Value Tents to make the numbers. Make predictions for the next page or number of seeds Jack grows.

Have students show the number on their cards, write the expanded notation and prediction for the next number.

Students will learn to double their number and subtract one. Ask how many seeds Jack will have in 30 years? 50 years? See if the students come up with a pattern.

Extensions

Use dice to show place value.

Students pair up and roll three dice.

Write the number, then roll the red or green die and add tens or hundreds.

Students can use the Place Value Tents to add the numbers from the dice.

Red, white, and green dice:

White—ones place

Red—tens place

Green—hundreds place

Folded *Place Value Strips* students cut strips and write numbers in the empty spaces to exchange hundreds for tens and tens for ones.

Have students add a digit (4) to the hundreds place. What number are we adding? (400)

What is the difference in adding a 4 to the hundreds place or adding a 4 to the number?

Assessment Plan

Put the students into groups of two. Have students take turns telling their partner large numbers (thousands), and check each other for the expanded form. Students should say the number, write the number, and write it in expanded form.

Authors

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