

Place Value 4th Grade

Summary

Students in 4th grade are expected to use what they understand about place value to millions to help them perform operations using multi-digit numbers.

Time Frame

4 class periods of 45 minutes each

Group Size

Large Groups

Life Skills

Thinking & Reasoning

Materials

devices with internet access (itools on ThinkCentral, books: Zoom and Count to a Million, colored index cards, whiteboards and markers, math expressions

Background for Teachers

Place value is a central concept to identifying the relative value of numbers and is developed in tandem with number sense. Students first start making groups of tens in 1st grade but the Utah Core Standards include place value understandings as major instructional clusters up through 5th grade.

Student Prior Knowledge

The number system - grouping ones into tens, tens into hundreds, and hundreds into thousands

Intended Learning Outcomes

Recognize that in multi-digit whole numbers, a digit in the ones place represents ten times what it represents in the place to its right. Accurately read and write multi-digit whole numbers. Use place value understandings to perform multi-digit arithmetic.

Instructional Procedures

Day 1: Ebook Zoom by Istvan Banyai This wordless picture book presents a series of scenes, each one from farther away, showing, for example, a girl playing with toys which is actually a picture on a magazine cover, which is part of a sign on a bus, and so on. It is a useful introduction to size comparisons and relative size. Brainpop on computer or device <http://www.brainpopjr.com/math/numbersense/placevalue/> Activity 1: Whole group On whiteboards, have students draw a representation of the number 3. Ask students to draw the 3 in "23". Did anything change in the drawing? Now draw the 3 in "38". Evaluate which methods they are using and talk about multiple ways to represent this number. Who can draw the 3 in "310"? Partner activity: selected numbers are put on colored index cards, coded by the value of the specified digit. Have them work in partners to describe how much greater the value of the digit is on the blue card than it is on the yellow or pink. Share out with students explaining what their partner thinks. Independent practice: identifying numbers, describing the value of targeted digits. Day 2: Book: Count to a million by Jerry Pallotta Independent or pairs on Ipad/computer: use itools in ThinkCentral to access Place Value Chips activity. Use this to model and solve associated problems from the text assignments.

Have students create, model, and solve self-created problems in which they add and subtract multi-digit numbers up to 1000. Pairs: Whiteboard place value grids to evaluate multi-digit numbers drawn randomly using spinners or dice. Day 3: Use app IdeaSketch to describe a multi-digit number. Place number in center of the map and the "spokes" to make proof drawings and explain the value of each place. iPad/computer: play the Place Value game, in which you strategically position numbers to get the largest possible value <http://education.jlab.org/placevalue/>

Strategies for Diverse Learners

Brainpop Jr. video is helpful to review vocabulary and concepts.

<http://www.brainpopjr.com/math/numbersense/placevalue/> There are related movies on concepts like rounding, adding, subtracting, and regrouping that could be useful for students who need more review or who are just learning the vocab. Youtube video on the "building blocks" of numbers is also excellent. <http://www.youtube.com/watch?v=phn3HYZfQpA> For students who already know this concept, students can explore the limits of the itools place value chips activity - what is the largest number it can create with this tool? Using the virtual manipulatives site, what is the highest number that can be modeled with the base 10 blocks? Additional activity for review: Roll to 100 Game <http://illuminations.nctm.org/Lesson.aspx?id=3760>

Assessment Plan

Perform a pre and post test about place value concepts to determine level of achievement and growth for each student.

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