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Research
Organisation

Subject Mathematics: Place value

Year level/Stage 3

Lesson background

This is the first lesson in the place value unit, and the first lesson of Mathematics in Year 3. It builds upon the place value understanding developed in Year 2.

This lesson background shows how the lesson is sequenced and positioned within the unit.

Learning objectives

To understand the difference between digits, numerals and number values, and their relationships to place value.

Success criteria

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

- apply place value to determine the value of a digit
- use place value charts and base ten blocks to model number values
- match numerals with representations of number values
- read 4-digit numbers with correct phrasing.

The success criteria are a series of clear statements that will be used to prove whether, and how well, a student has met the learning objectives at the end of a period of instruction.

Misconceptions

Some students may:

- write numerals as they are said; for example, 234 as 200304
- 'collapse' the numerals if there are zero units; for example, 4056 as 456 (without the digit '0' as place holder)
- think that a number is a '4-digit number' if it has the digit 4 in it, a '3-digit number' has the digit 3 in it, and so on
- think that a digit 2 in the hundreds is worth 2, rather than 200.

Misconceptions are incorrect knowledges and understandings that students have prior to the lesson, or may obtain during the lesson. Outlining these during planning can help with monitoring student learning, and recognising when corrective feedback is needed.

Lesson stage*	**Tasks** What are the specific classroom or instructional activities that you and your students will use in each stage?	**Monitoring student learning****
(continued) How will you ensure that students have the prerequisite skills and knowledge to progress their learning in this lesson? How will you activate prior knowledge/help students retrieve relevant learning		

Lesson stage	Tasks What are the specific classroom or instructional activities that you and your students will use in each stage?	Monitoring student learning
Explicit teaching of new learning ('I do') – place value chart representation		
How will you communicate the learning objectives to students? How will you break down your content into sequential steps to avoid overloading your students' working memory? How will you model the learning to support student understanding?	**Whole class:** 1. Read the learning objectives and success criteria to students, referencing back to them as they are encountered throughout the lesson. 2. Place value understanding is broken into concrete steps, each of which has an 'I do, we do, you do' cycle:* a. place value chart b. base ten block representations to numeral c. numeral to base ten block representations. 3. Teach the class how to use a place value chart, linking the numeral with its value in the chart. Work through each question aloud, using your fingers to count out the digits. Use the choral response technique by repeating numbers of varying lengths out loud, then demonstrate how to place those numbers on a place value chart.** 4. Check the starter quiz for the misconception that a number like 234 could be represented as 200304. If this is the case, use mini whiteboards to check for this misunderstanding using 142 and 278.***	How will you help students retrieve information learned in previous lessons, units? How will you check for understanding and correct any errors or misconceptions before moving onto guided practice?

Lesson stage	Tasks What are the specific classroom or instructional activities that you and your students will use in each stage?	Monitoring student learning
Guided practice ('We do') – place value chart representation		
What worked examples will you provide students? What scaffolds and instructional supports will you introduce, and how will students use these? How will students work together to progress their skills and understanding?	**Whole class:** 1. The main scaffold used in this lesson is the place value chart. Undertake guided practice of using the place value chart by: a.	

Lesson stage	Tasks What are the specific classroom or instructional activities that you and your students will use in each stage?	Monitoring student learning
Explicit teaching of new learning ('I do') – base ten block representations to numeral		

Lesson stage	Tasks What are the specific classroom or instructional activities that you and your students will use in each stage?	Monitoring student learning
Independent practice ('You do') – base ten block representations to numeral		
	Independent: Encourage all students to work on the independent practice questions, to help with fluency. Pose 4 quick questions for practice as a review of learning from the previous year. The last the questions should be more difficult, with zeroes in two place values.* **Small groups:** Some students may need more guided practice. Gather these students into a small group a work through one more example before giving them the opportunity to work independently Students who need extra practice can try worksheet task 5, with several additional question related to the use of zeroes in some place values. There is also the opportunity to have students come up with their own 4-digit numbers and base ten block representations. Alternatively, give them 4 digits and then ask them to find th highest and lowest value possible using those 4 digits once each in a number.** ** Sme psudents whil gave s sreasnalle ugrasphnfplace values	

Lesson stage	Tasks What are the specific classroom or instructional activities that you and your students will use in each stage?	Monitoring student learning
Explicit teaching of new learning ('I do') – numeral to base ten block representations		
	1. The final step is the reversal of the previous idea – take numerals and represent them as base ten blocks. Explicitly demonstrate splitting this process into two main steps:* a. Placement of digits in the appropriate place values. b. Drawing of the base ten blocks. 2. Use 2456 as the starting numeral for this explicit instruction step.	
Guided practice ('We do') – numeral to base ten block representations		
	Present two worked examples of different numbers of digits – 1436 and 4053. The first (1436) has base ten blocks in each place value, whereas the second (4053) has no hundreds. Reiterate that we use a zero in that place value to show it has no units.	
Independent practice ('You do') - Numeral to base ten block representations		
	1. Encourage all students to work on the independent practice questions, to help with fluency. Then ask students then move on to worksheet task 6, with several additional questions related to the use of 0s in some place values. 2. For advanced students, provide 4 digits and then ask them to find the highest and lowest value possible using those 4 digits once each in a number.	

* Again, I am using the place value chart to help structure the question and deal with the concept of a place holder.