**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 3 and 4 | STRAND: Number and Algebra | **SUB-STRAND:** **Whole Numbers 2** | **WORKING MATHEMATICALLY:**  |
| OUTCOMES: |  **Recognise, represent and order numbers to at least tens of thousands.** |
| **CONTENT:**  | Use place value to partition numbers of up to five digits and recognise this as ‘expanded notation’, eg: 67012 is 60000+7000+10+2. |
| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | <http://www.math-aids.com/Place_Value/Expanded_Notation.html> |
| WARM UP / DRILL | Ask a few volunteer students to come to the board and write down the largest number that they can think of and read aloud. Many students will want to put endless numerals on the board, but being able to read the number aloud is a more difficult task. |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | <http://www.kidsknowit.com/free-educational-worksheets/worksheets.php?worksheet=expanded-notation>Levelled worksheets for expanded notations. |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Language: place value, ones, tens, hundreds, thousands, ten thousands, hundred thousands, expanded notation (or expanded form) |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
|  | LEARNING SEQUENCERemediationE1  | Make cards labelled with the digits 0-9 on one side and zero on the back. Also make several commas. Pass out the cards randomly and then say a number (ex. 56,291). The students with the cards work to build the number. Check to make sure they are correct and write it on the board.  |
| LEARNING SEQUENCES2 | 1. Give each student a sheet of paper or large note card with a numeral between 0 - 10.
2. Call two students up to the front of the class. Any two students will work as long as they are not both holding a 0 card.
3. Have them show their numerals to the class. For example, one student is holding a 1 and the other is holding a 7. Ask the class, “What number do they make when they stand next to each other?” Depending on where they are standing, the new number is 17 or 71. Have students tell you what the numbers mean. For example, with 17, the "7" means 7 ones, and the "1" is really 10.
4. Repeat this process with several other students until you are confident that at least half of the class has mastered the two-digit numbers.
5. Move on to three digit numbers by inviting three students to come to the front of the class. Let’s say that their number is 429. As in the above examples, ask the following questions:

•What does the 9 mean? •What does the 2 mean? •What does the 4 mean? As students answer these questions, write the numbers down: 9 + 20 + 400 = 429. Tell them that this is called “expanded notation” or "expanded form". The term “expanded” should make sense to many students because we are taking a number and expanding it into its parts.1. After doing a few examples at the front of the class, have the students begin writing the expanded notation down as you invite students up to the board. With enough examples on their paper, when it comes to more complex problems, they will be able to use their notes as a reference.
2. Continue adding students to the front of the class until you are working on four-digit numbers, then five-digit, then six. As you move into the thousands, you may want to "become" the comma that separates thousands and the hundreds, or you can assign the comma to a student.
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| LEARNING SEQUENCEExtensionS3 | •Have students write 987,654 in expanded notation OR the largest number that they are able to. •Have them write 20,006 in expanded notation (Be sure to go over this one in class the next day.) |
| **EVALUATION & REFLECTION** | Write the following numbers on the board and have students write them in expanded notation: 1,786 30,551 516 |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.