**MATHEMATICS WEEKLY/UNIT PLANNER**

**Level:** Gr 3/4     **Term:**1 **2017       Weeks: 5 - 9**

**Teachers:** Sinead, Kellie and Marg

**Dimension:** Number and Algebra

**Specific Focus for Unit:** Place Value

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| **Victorian Curriculum Content Descriptions**  [**http://victoriancurriculum.vcaa.vic.edu.au/mathematics/introduction/rationale-and-aims**](http://victoriancurriculum.vcaa.vic.edu.au/mathematics/introduction/rationale-and-aims) | **Key Concepts**  [**https://drive.google.com/file/d/0B3ydL4IWBSAbbk5laWtLOEprYXc/edit**](https://drive.google.com/file/d/0B3ydL4IWBSAbbk5laWtLOEprYXc/edit) |
| **Gr 2:** Recognise, model, represent and order numbers to at least 1000 [(VCMNA104)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA104)  Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting [(VCMNA105)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA105)  **Gr 3:**  Recognise, model, represent and order numbers to at least 10 000 [(VCMNA130)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA130)  Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems [(VCMNA131)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA131)  **Gr 4:**  Recognise, represent and order numbers to at least tens of thousands [(VCMNA152)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA152)  Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems [(VCMNA153)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA153)  **Gr 5:**  Use estimation and rounding to check the reasonableness of answers to calculations[(VCMNA182)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA182)  Recognise, represent and order numbers to at least hundreds of thousands [(VCMNA186)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA186) | **Partitioning**   * Recognising that numbers can be ‘broken up’ in different ways e.g. 154= 15 tens and 4 ones or 14 tens and 14 ones   **Base 10 System**   * Recognising that our number system is based on grouping quantities in tens. Each place has a value that is 10 times greater than the place to its right and one tenth to the value to its left   **Digit position**   * The place of a digit determines its value, including recognising zero as a place holder |

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| **Pre-Assessment** | **NAPLAN misconceptions** | **Learning Intentions** |
| **Task:**  SINE Number Assessment Year A  **Misconceptions**: -Understandings of equal signs (same as) -Algorithms can be written backwards and forward -Creating visual representations of multiplication and division - Recognising that zero is a place holder - 1000 more and 1000 less - 10 less than 201 is 191.  **Strengths**: - Sequencing numbers - | * Reading number lines * (Q29) - Reading, recognising and interpreting place value. * Place value (reading and writing 4 digit numbers), particularly that zero is a placeholder (q14) * Solving number sentences such as 20 = 25 - \_\_\_ | We need to understand our number system so we can handle larger and more difficult numbers.  The value of a number depends on its position or place.  Our number system is based on grouping quantities in tens and using 0,1,2,3,4,5,6,7,8,9 to record these.  We can ‘break up’ numbers in different ways - eg. 154= 15 tens and 4 ones or 14 tens and 14 ones  We can use 0 as a place holder - eg. in 208 the zero means there are no tens  A number with many digits can be hard to read. We cluster the digits in groups of three,  starting from the ones place  Multiplying a number by ten shifts each digit one place to the left. |

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| **SESSION NUMBER**  **KEY IDEA**  **LEARNING INTENTION** | **TOOL SESSION**  A short, sharp task relating to fluency in mental computation or the focus of the lesson.  **WHOLE CLASS FOCUS**  Sets the scene/context for what students do in the independent session. | **INVESTIGATION SESSION**  Extended opportunity for students to work in pairs, small groups or individually. A time for teacher to probe children’s thinking or work a small group for part of the time. | **REFLECTION**  Focused teacher questions and summary to draw out the mathematics and assist chn to make link/s. | **TEACHER ASSESSMENT**  We are looking for... |
| **Session 1**  **LEARNING INTENTION**  We need to understand our number system so we can handle larger and more difficult numbers. | **TOOL SESSION** [**https://em-ccss.everydaymathonline.com/pdf/gameboards/BKG\_G3\_base10.pdf**](https://em-ccss.everydaymathonline.com/pdf/gameboards/BKG_G3_base10.pdf)  or  **Number of the Moment**  **WHOLE CLASS FOCUS**  Introduction of topic and guide through the learning intentions on the cover sheet.  [**https://www.youtube.com/watch?v=21l3Jg5\_MCg&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5&t=10s&index=19**](https://www.youtube.com/watch?v=21l3Jg5_MCg&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5&t=10s&index=19)  Introduction to place value  [**https://www.youtube.com/watch?v=a4FXl4zb3E4**](https://www.youtube.com/watch?v=a4FXl4zb3E4)  Place Value Song For Kids | Ones, Tens, and Hundreds and shows the pattern  **‘Where’s My Number?’** game.  Class designates a number between 0 and 9.  Use the random number generator (set between 0 -100).  If designated number is in ones position, students put hands on knees, tens - hips, hundreds - shoulders, thousands - heads (Can be extended to tens of thousands - hands in air)  Can be played as elimination game where kids who are out sit down. | **INVESTIGATION**  **Task:  Rip Apart 100**  Give children counters, beans icy-pole sticks or coloured matchsticks. Ask them to count out 100. Use the counters to show how 100 can be ripped apart in many different ways. Ask the children to makestatements about the different ways they  have ‘ripped part’ the number 100. For example, 87 + 13 = 100 Record and check with a calculator  Then investigate: if one of the parts must be a multiple of ten, how many different ways can you rip apart 100?  Students record answers  **Extending Prompts**:  Use 1000  **Enabling Prompts:**  Begin with 10 | **REFLECTION**  Share results  Use post-its and half post-its to show numbers eg.  **https://lh5.googleusercontent.com/tl5LpnPhz9gjJS5VBT3aQorKfR7uMSpGr6uQU1J2ms_jVN4Oci9EyF_GntGGK0tnY7bRcomJEi33HNPHhzcck-k50s6SyG1XLKGzrYhkhKd4wVQRqzKveDJeztnOg-ITpjvvmCge** | That student have mastery over numbers to 100 and planning alternatives for those who don’t. |

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| **Session 2**  **LEARNING INTENTION**  The value of a number depends on its position or place. | **TOOL SESSION**  **‘Where’s My Number?’** game  **WHOLE CLASS FOCUS**  [**https://www.youtube.com/watch?v=qJJugG1bTf4&index=22&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5**](https://www.youtube.com/watch?v=qJJugG1bTf4&index=22&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5)  How to read numbers in the millions  **How Much am I Worth?**  Use the random number generator to display numbers.  From a cup pull a post it (post-its say ones, tens, hundreds, thousands - more if needed) Students must identify the correct number that is worth that was pulled out place and show it with MAB | **INVESTIGATION**  **Task: Roll, Write and Value**  Students roll dice (number of dice determined by their ability to cope with 2,3,4,5,6 -digit numbers) to produce a number which they write. Then pull from cup a value and write is beside.  Students then write in what that place is worth  **Extending Prompts**:  Using more numbers into tens and hundreds of thousands, millions  **Enabling Prompts:**  Keeping it to 2 and 3 digit numbers | **REFLECTION**  This task can also be done with cards with any picture card designated as a 0 (Aces = 1)  https://lh6.googleusercontent.com/SgP3jx3qJluWswK8Gq6qH3RbVU8_Xz5Ry5fjntY8pkJiJNaYmrkpPd7h1E94l9zrupu6tJfnexuIK3JqDp1TzXShmsgobOEPZCnNzn7BNpmjItRzH6_7ZOnUgGzSPSBjEV49nqj0 | Can students correctly identify numbers by their position?  Students’ level of mastery of numbers for their grade standard (Vic Curric)  Gr 3: to at least 10 000  Gr 4: to at least tens of thousands |
| **Session 3**  **LEARNING INTENTION**  Our number system is based on grouping quantities in tens and using 0,1,2,3,4,5,6,7,8,9 to record these.  We can use 0 as a place holder - eg. in 208 the zero means there are no tens | **TOOL SESSION**  **‘Where’s My Number?’** game  **WHOLE CLASS FOCUS**  **Place Value ‘It’s All Connected Mats’**  https://lh5.googleusercontent.com/eurPqsssrBUng7KFvrEG6DmLK_d2qAQbm6IwlJ0ChL7bSmJ2wmiJwxnQ-wnnDeBpA_010wyrVkkOjBCLEwBlhtH3VTXEpC0FLDokpYQMm1_b7rwKpBHTtanVyeerjMOxg0YrDfup | **INVESTIGATION**  **Task: ‘It’s All Connected’**  Students use ‘All Connected’ mats (under whiteboard screens)  **Extending Prompts**:  Using more numbers into tens and hundreds of thousands, millions  **Enabling Prompts:**  Keeping it to 2 and 3 digit numbers | Follow up extended notation by showing that the order does not matter eg. 200 + 1000 + 5 = 1205  https://lh6.googleusercontent.com/lRrBZipM0XFHqxCTKXDSDysskJMQUYcrID6ZCPmzO4Sfp9dXUvVSLNGOh4BSXjBrX1G_6BWKX9ErNEatstI528xrXlZB-gkdDnPKww-nx7bTdX3caiufBIP9kWYBifcUL1Jrwsjl | Students’ level of mastery of numbers for their grade standard (Vic Curric)  Gr 3: to at least 10 000  Gr 4: to at least tens of thousands  Check if misconception from SINE test has been cleared up |

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| **Session 4**  **LEARNING INTENTION**  Our number system is based on grouping quantities in tens and using 0,1,2,3,4,5,6,7,8,9 to record these.  We can use 0 as a place holder - eg. in 208 the zero means there are no tens | **TOOL SESSION**  **‘Where’s My Number?’** game and **‘It’s All Connected’**  **WHOLE CLASS FOCUS**  Establishing rules for the Trading Game  https://lh4.googleusercontent.com/bTOiSwZ1GKTcUPr-F3wFngbMTho1cssxt5xReP_5rFI3vy5vwV5KYLeJIS43Q86qjeJ5Em4SJVuuTraHrJhtONdCaQ-jYTWeavoZ9LT4DBdKGN5hDeNIjunl21vYuX3A377LTzDo | **INVESTIGATION**  **Task:  The Trading Game**  Students play in turn by rolling the die and taking the appropriate amount of units, longs, flats, etc. e.g. a roll of 19 = 1 long (10) and 9 units (1s)  and placing them on the place value mats.  Students record then continue and make appropriate exchanges as needed.  The winner is the first to reach the highest number after 10 rolls.  **Extending Prompts**:  Vary the types of die used and extend the place value mat.  **Enabling Prompts:**  Simplify the type of die and use the basic place value mats. | **REFLECTION**  Students choose 1 or 2 of the sentences to complete  (could be done orally or written in Learning Journal)  I was able to…  My success rate…  I learnt that…  I can … (refer to learning intentions)  Next time I would...  . | Students’ level of mastery of numbers for their grade standard (Vic Curric)  Gr 3: to at least 10 000  Gr 4: to at least tens of thousands |
| **Session 5**  **LEARNING INTENTION**  Our number system is based on grouping quantities in tens and using 0,1,2,3,4,5,6,7,8,9 to record these.  We can use 0 as a place holder - eg. in 208 the zero means there are no tens | **TOOL SESSION**  **The Trading Game** and **‘It’s All Connected’**  **WHOLE CLASS FOCUS**  Lead students through worksheet | **INVESTIGATION**  **Task: Worksheet** of various problems taken from ‘Targeting Maths’  **Extending Prompts:**  Study Ladder extension  **Enabling Prompts:**  Teaching table intervention and support |  | Worksheet correction |

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| **Session 6**  **LEARNING INTENTION**  We can ‘break up’ numbers in different ways - eg. 154= 15 tens and 4 ones or 14 tens and 14 ones | **TOOL SESSION**  **The Trading Game** and **‘It’s All Connected’**  **WHOLE CLASS FOCUS**  Take a whole number and break it up using a place value mat.  Do in a standard way first then try some alternative ways  - eg. 154= 14 tens and 14 ones | **INVESTIGATION**  **Task: Which of the Following**  see worksheet  **Extending Prompts:**  Use bottom sheet  **Enabling Prompts:**  Use top sheet | https://lh3.googleusercontent.com/VHygL5hLMn3M6VHWePPNAyO6pspmtp367u-RT1DTIbRnwIA4r1ua9wSYmhN2om2dUN_h1lSQz_KV-dFf03DRN7UlQ_oaqbxRt7Vdu4ztRmj6pkvB4VDwkpkK_DnVr-ROQebU9iBp  https://lh5.googleusercontent.com/7URNIGkeHd5ZB5foXK1adu2TY-GroZp-bhph2DMwplFFfcBUC7XOd1oCmdhsXhc8knWYXOep43TqiYcBzf3o3NLChcYfpY8wQRwt5x4B75yWyxDdY7o9kmzcTIvA1-pMi452bYy9 |  |
| **Session 7**  **LEARNING INTENTION**  A number with many digits can be hard to read. We cluster the digits in groups of three,  starting from the ones place | **TOOL SESSION**  **‘Where’s My Number?’** game  **WHOLE CLASS FOCUS**  [**https://www.youtube.com/watch?v=2S0XCrzXvgw&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5&t=53s&index=22**](https://www.youtube.com/watch?v=2S0XCrzXvgw&list=PLDQlSh98XAywTatIwQKMAyPa4rtMl6Ft5&t=53s&index=22)  Placing the commas song | **INVESTIGATION**  **Task:**  **The Trading Game** and **‘It’s All Connected’**  **Extending Prompts**:  As in above lessons  **Enabling Prompts:**  As in above lessons | **REFLECTION**  Students choose 1 or 2 of the sentences to complete  (could be done orally or written in Learning Journal)  I was able to…  My success rate…  I learnt that…  I can … (refer to learning intentions)  Next time I would... | Check for correct writing of numbers |

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| **Session 8**  **LEARNING INTENTION**  Multiplying a number by ten shifts each digit one place to the left. | **TOOL SESSION**  **‘Where’s My Number?’** game  **WHOLE CLASS FOCUS**  [**https://www.youtube.com/watch?v=U8hZae6hYpw&list=PL4nm3JnkRG--ApYd5WgHTg7T2x0PHNQ4m&index=1**](https://www.youtube.com/watch?v=U8hZae6hYpw&list=PL4nm3JnkRG--ApYd5WgHTg7T2x0PHNQ4m&index=1)  "Hiking the Place Value Chart" | **INVESTIGATION**  **Task: Place Value Hiking**  Students are given a number and must increase this number by multiplying different parts of this number by 10. Choosing ones, tens, or hundreds from a cup of post-its, students multiply that value by ten and record the new number  Repeat four times and compare beginning and ending numbers.  **Extending Prompts**:  Use 5 and 6 digit numbers  What happens if you want to go back the other way?  **Enabling Prompts:**  Use 2 and 3 digit numbers |  |  |