Unit 2NO: Place Value

Primary Years

Noarlunga Cluster

***Numeracy Planner* Week/Date:**

**Big Idea:**Place Value **Focus/Goal of unit:**Build concept of one 10, not 10 ones, introduce renaming**Language/vocab:**renaming, bundle, tens, ones, subitise, ten frame, part-part-whole, efficient

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| **Lesson Sequence** | **Stage 1** | **Stage 2** | **Stage 3** | **Stage 4** | **Stage 5** |
| Low Order / Intro Activity (5-10mins) | Subitising activity. Flash cards, sts to record what they saw. Check as a class. Sts share what they saw, strategies they used etc. | Repeat. | Make to 10 mental. Show a 10 frame. Sts record how many more would make 10. Flash quickly so they can’t count. | Di Siemon’s Place Value game to order numbers. (This lesson introduces it and then it can be a Low Order activity.) | Play Place Value game with a brief revisit of strategies they can use. |
| Goal / Purpose of lesson Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |  |  |  |  |  |
| High Order / Modelling (10-15mins) | In pairs, students are given a pile of counters. They can discuss with their partner their strategy to count quickly (timed). Count them as quick as they can and record the number. Then share strategies and discuss efficiency. Discuss efficiency of organising the count into 10s. Allow sts to do and watch how they do it. Record the number. Is it the same/diff. Why? Share strategies to make 10 quickly and trust that each pile/line has 10. | In partners, roll dice & collect that number of cubes. When a ten frame is full, connect to make one 10 and call out “10 power!” Make explicit the thinking strategies re: what happens when you make more than ten. | Banker game in pairs/threes. On trading mat, sts roll dice and collect ones. When you have 10 ones bundle to make one 10. Make explicit: what makes 10 mentally, strategies to avoid counting by ones, knowing part-part-whole. | In pairs, sts roll 2 dice and choose a number to place on the mat. Make explicit strategies re: where to position a number, what consequences this would have further on in the game, ½, ¼ of 100, chance and data, if the game only went to 20. | Roll the dice to get a 2 digit number. One student makes the number in the least amount of bundles and places it on the scale.  Their partner makes it again by unbundling and renaming, and places on the other side of the scale. Both students record the number and how many different ways they can make it.  Explicitly discuss the most efficient way to think of the number in terms of its PV parts. |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  |  |  |  |  |

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| Joint conceptualising / meaning making (10 mins) | How did organising the count help us to trust 10 and know 10. How do we know our count is correct? Is it more effective than counting by ones? | How does the 10 frame help you organise the count? If we stopped at any point, how would know how many you had without counting by ones? | Share what students got up to. Sequence the numbers, write your number on your whiteboard. How do you know without counting that’s what you got? Have a go at making lowest to highest etc. | Share what strategies worked, what you would change if you could. At what point did the game get difficult? What would your buddies need to know if you were going to teach them this game? | Call whole class to floor into a circle. Show a number on a card or on the board and invite students to show an efficient way to make the number, and an inefficient way. Ask ‘why is this way more/less efficient?’ Look for handover and use of specific language. |
| Equipment/Resources | LOTS of counters! | Unifix cubes, 0-9 Dice, Playing mat | Trading mats, 0-9 dice  Pop sticks, Rubber bands | Game board, 0-9 dice  Whiteboard markers | PV Scale sheet, 0-9 dice  Bundles of pop sticks |

***Numeracy Planner*** **Week/Date:**

**Big Idea:** Place Value **Focus/Goal of unit:** Renaming numbers moving to mental strategies. Naming, recording and saying large numbers, looking at the 2nd Place Value system. **Language/vocab:** ones, hundreds, thousands, tens of thousands

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| **Lesson Sequence** | **Stage 6** | **Stage 7** | **Stage 8** | **Stage 9** | **Stage 10** |
| Low Order / Intro Activity (5-10mins) | Subitising cards in 10 frames focussing on 10 and some more. | Backwards subitising – call out what I see, the children record the total e.g. I see two groups of 5 and one more = 11 | Number washing line 0-50. Place card with value on the line in the correct place. How do you know? Ask other children for advice. | Look at counting by PV parts. Demonstrate on calculators & 0-99 chart with masked rows. | Number washing line 0-100. Discuss positioning and share reasoning. If time, change the length of the line, but not the numbers. What changes? |
| Goal / purpose of lesson  Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |  |  |  |  |  |
| High Order / Modelling (10-15mins) | Roll 2 ten sided dice. Draw the most efficient way to make that number in MAB symbols, in the 3rd column rename it as many times as possible (up to 6). Observe and extend some children up HTO or ThHTO. | Recap previous lesson’s task. Extend children by using 12 sided dice. Record their roll e.g. 11 hundreds, 2 tens and 12 ones.Name the number i.e. 1132. They may use MAB to build first. | Discuss the number system. What do they already know? Build up a large number on the board using a 10 sided dice. Use number builder chart. Read the new number each time, focus on 2nd PV system. | Using the large number board, roll big numbers as yesterday. This time discuss PV e.g. 361 – how many units of one, 10, etc? Children can determine size of number according to their ability. | Review large number naming. Students repeat activity, making explicit the strategies they need to read large numbers and the role of the comma. |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  |  |  |  |  |
| Joint conceptualising / meaning making (10 mins) | Roll 2 or 3 numbers to rename as a class. Students to share strategies without equipment and then check together with equipment. | What number did you roll? How did you work it out. Model to whole class and share strategies. | Each pair reads out the number they’ve made. Discuss the 0 as a place holder. Review the 2nd PV system, focussing on HTO in each set. | Read your number to the teacher. Write your number on a card. Children to assemble in order from highest to lowest. Review 2nd PV system pattern and the comma. | Bring numbers to floor on card. Practice reading numbers and ordering/grouping in different ways e.g. highest to lowest, vice versa, even numbers, odd numbers etc. |
| Equipment/Resources needed in lesson | MAB blocks  Pop Sticks  10 sided dice  Maths books | MAB blocks  Popsticks  10 sided dice  12 sided dice | 10 sided dice  Individual whiteboards  Markers  Big number board | 10 sided dice  Whiteboards  Markers  Cards | Big number board  10 sided dice  Maths books  Cards |

***Numeracy Planner* Week/Date:**

**Big Idea:**Place Value - Addition **Focus/Goal of unit:**Addition using renaming, building on PV knowledge & skills developed

**Language/vocab:**renaming, addition, plus, sum of, together

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| **Lesson Sequence** | **Stage 11** | **Stage 12** | | **Stage 13** | **Stage 14** | **Stage 15** |
| Low Order / Intro Activity (5-10mins) | Washing line sequencing. Varied numbers to extend thinking e.g. 75-150 etc. | Hand out cards that have a PV part of a number e.g. 2hundreds. In small groups students make the biggest number they can, smallest etc. | | Subitising – with sharing of strategies. (to increase mental computation skills.) | Bunny ears – call out a number 0-10, students make that number by holding each hand up by their heads. Discuss different ways students made numbers, encourage quick mental part-part-whole. | Use subitising cards to practise doubling. |
| Goal / purpose of lesson  Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |  |  | |  |  |  |
| High Order / Modelling (10-15mins) | Revisit ordering numbers. Make a 3 digit number (using dice), record how many numbers can be made using those digits and order from smallest to largest. | Demonstrate rolling a 3 (or 4) digit number and record on a number expander. Write how many ways you can find to rename that number. When all possibilities are exhausted they swap their expander with someone else’s. | | Demonstrate renaming by writing HTO chart on the board and display sum with magnetic MABs (or on floor). Demonstrate process of addition with renaming by physically manipulating materials to find sum. | Build on previous lesson(s) by repeating demonstration while recording formally on the board the sum. Students can record on whiteboards for confidence building. | Build on previous lesson by rolling 2 digit numbers (can challenge by more digits) repeating demonstration and formally recording using renaming. When students practise activity, they may not need manipulatives. |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  | |  |  |  |  |
| Joint conceptualising / meaning making (10 mins) | How many numbers did you discover could be made from 3 digits? (6) Discuss and explain. Share strategies on how to know a number is bigger e.g. 289 or 298. Students write numbers on cards and get in order(s). | Put sample numbers on the board. Students participate by offering a rename of that number. Check student’s understanding. | | Children share strategies of how to know when to change 10 of these for one of those. | Beat the teacher game. Teacher rolls 4 digits, one at a time. Students choose where to place digit with aim of creating a sum that makes a larger number than the teacher’s. | Beat the teacher. Can increase difficulty by rolling 3 digit numbers. |
| Equipment/Resources needed in lesson | Dice  Cards  Whiteboards  Markers | Number expanders (1 per student)  dice | | Dice  MABs (and/or pop sticks) |  |  |

***Numeracy Planner* Week/Date:**

**Big Idea:**Place Value – Addition continued **Focus/Goal of unit:**

**Language/vocab:**

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| **Lesson Sequence** | **Stage 16** | **Stage 17** |  |  |  |
| Low Order / Intro Activity (5-10mins) | Practise together as a class at rolling dice to make a large number.  (Reading larger numbers) | Mental addition to 10,  Extend to 20 |  |  |  |
| Goal / purpose of lesson Make explicit to the students the purpose of the lesson, what they will know by the end, etc |  |  |  |  |  |
| High Order / Modelling (10-15mins) | Extend to making sums of more than 2 rows of numbers, and more than HTO.  Encourage and demonstrate beginning with the larger digit to add onto. | Move into problem solving.  Demonstrate and solve together.  Set problem for class to solve.  Give the opportunity to work in pairs. |  |  |  |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  |  |  |  |  |
| Joint conceptualising / meaning making (10 mins) | Discuss different strategies used by students | Discuss different strategies used to solve problem with the understanding that there’s more than one way. |  |  |  |
| Equipment/Resources needed in lesson | Assortment of dice |  |  |  |  |

***Numeracy Planner* Week/Date:**

**Big Idea:**Place Value - Subtraction **Focus/Goal of unit:**Subtraction

**Language/vocab:**digit, numeral, number

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| **Lesson Sequence** | **Stage18** | **Stage19** | **Stage20** | **Stage21** | **Stage22** |
| Low Order / Intro Activity (5-10mins) | Dice rolling to make the largest 7 digit number. Whole class. | Give out cards with 3 digit numbers on them and then have them get into order. | Ordering 3 digit numbers see Stage 11 | Mental subtraction from 10 | Mental subtraction from 20 |
| Goal / Purpose of lesson Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |  |  |  |  |  |
| High Order / Modelling (10-15mins) | Making 3 digit numbers and determining which is the largest. Roll 3 dice and write down all of the different numbers that can be made using the 3 digits. Order them from largest to smallest using H/T/O chart. Order in a column. Students need to understand that when subtracting the smaller number is always taken from the larger number. Students will then work either alone or with a partner to practice the above skill. Use whiteboards. | Using columns (H,T,O) masking taped to the floor work together with students to begin subtracting 3 digit numbers. Use pop sticks to represent the number and to model renaming.  Remind students of the importance of subtracting the smaller number from the larger number.  Students can then use materials with a partner to practice subtracting with renaming. | Move from concrete materials to formal recording. Teacher rolls dice to make 3 digit numbers and then writes a 3 digit subtraction problem on the white board and models the process. Concentrate on renaming. Teacher will need to model this process a number of times –asking students to rename.  Students then repeat this process either alone or with a partner.  Students need to write their answer in digits and in words. | Repeat previous lesson (lesson 13) with numbers that include zeros and need multiple renaming. This concept is quite difficult for some children and it may be important to work with a small focus group at this time.  If students demonstrate understanding of this concept they can move on to larger numbers e.g. 4 digit etc. | Repeat previous lessons but subtracting more than one number from the original e.g.  567 – 123 then – 211 then – 129  Students may check their answers using a calculator. |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  |  |  |  |  |

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| Joint conceptualising / meaning making (10 mins) | Gather students and discuss the reason why we need to order numbers from largest to smallest. Discuss variety of strategies students used. Did somebody do it differently? Share strategies. | Repeat task as a group, asking students to give reasons as to why we need to do tasks in this way. Discuss variety of strategies used. | Ask student for example problems that they did. Have them record the problem on the whiteboard and explain what they did to the class. Discuss effectiveness of the strategy and any problems that were encountered. | This lesson will inform teachers of the depth of understanding that the students have of Place Value. |  |
| Equipment/Resources needed in lesson |  |  |  |  |  |

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**Language/vocab:**digit, numeral, number

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| **Lesson Sequence** | **Stage23** |  |  |  | |  |
| Low Order / Intro Activity (5-10mins) | Mental subtraction from 10 and 20 |  |  |  | |  |
| Goal / Purpose of lesson Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |  |  |  |  | |  |
| High Order / Modelling (10-15mins) | Problem solving.  Look at vocabulary – different terms used for subtraction. Write a word problem on the whiteboard and scaffold students through the process of pulling out key information. Present students with a similar word problem and have them work through it with a partner in a systematic way e.g. highlight key terms etc |  |  |  | |  |
| Application (20 mins) Children set to task as teacher observes, assesses & scaffolds as needed. |  |  |  |  | |  |
| Joint conceptualising / meaning making (10 mins) | This lesson needs to be highly scaffolded as it is a literate and numerate process. |  |  | |  |  |
| Equipment/Resources needed in lesson |  |  |  | |  |  |