**Unit 1NO: Trusting the Count**

Year Levels: Early Years
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**A suggested sequence for teaching number**

1. Introduce numbers systematically – including recognition of the numeral, numeral name and part/part/whole of a number
2. Ordering numbers – to include concepts before/after, smaller/bigger, smallest/biggest, sequencing of numbers etc.
3. Ordinals – concept of ordinal number, recognise number and name form e.g. 1st first. Relate to everyday use – months of the year, days of the week, lining up etc.
4. Greater than/Less than/Equals – understanding concept plus word names and symbols. Students need to be able to compare numbers and use appropriate language,
5. Counting on and counting back – very useful when beginning addition and subtraction problems.
6. Doubles – automaticity for recognition of double numbers e.g. 6 and 6 is 12. Include other terms such as twice as many, double the number etc.
7. Odd and Even numbers
8. Fractions – half, quarters, eighths ( Look at Australian Curriculum for guidance)
9. Skip Counting/Number Patterns – Counting by two’s, fives, tens etc. Also starting at odd places to continue in a pattern eg by two’s but start at 7…
10. Calculations and associated mathematical language for addition, subtraction multiplication etc. E.g. addition to include terms such as the sum of, plus, add … subtraction to include minus, take away, the difference between … Symbols to be introduced.
11. Word problems – students need to be exposed to problems where they are required to work out the operation/process to be used.

The above concepts can be used with small numbers for students in Reception/Year 1, but continue to repeat the above stages as bigger numbers are introduced. It can even be used for negative numbers when introduced at higher year levels.

There can be links with other areas such as measurement, money, time etc.

***Numeracy Planner***

**Sequence Step 1**

**Big Idea: Part/part/whole**  **Week/Date:**

**Focus/Goal of unit:Intro Numerals 0-6 including names and understand Part/Part/Whole**

**Language/vocab:**

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| --- | --- | --- | --- | --- | --- |
| **Lesson Sequence** | **Stage 1** | **Stage 2**  | **Stage 3**  | **Stage 4**  | **Stage 5** |
| Recap last lessonLow Order / Intro Activity (5-10mins) | Game of Buzz or Beans in a can \* | Beans in a can game using subitising cards to 6 (pictures or dots) | Chn. stand in pairs. Show one of the pair a numeral and get them to write on their partners back. Can they recognise? Change over. | Teacher holds up a numeral card and a name card. Do they match? When teacher shows a card ( can be number or name) get children to show number of fingers or correct number of claps  | Counting to 6 forwards /backwards.Number before /afterShow me 4 with your fingers. |
| Goal / Purpose of lessonMake explicit to the students the purpose of the lesson, what they will know by the end and why. | Goal: Intro numerals, oral names 0-6 relevant to students level | Goal: Identify, say and write numerals | Goal: to recognise numerals to six and names | Goal: Focus on part/part whole – focus on a particular number at a time plus the use of the word ‘and’ | Goal: Focus on part/part whole – focus on a particular number at a time plus the use of the word ‘and’ |
| High Order / Modelling (10-15mins) | -Flash the numeral cards one at a time to chn. (? How did you know it was 5) -As a class make the number with concrete materials.-Show picture representations of amounts, Chn. Select correct numeral.  | -Explicit teaching on how to write each number, using whiteboards, sand trays, someone’s back etc)- Tracing using electronic whiteboards etc-Use a dice to throw, chn. write the numeral\*\*Teach starfish game | **-**Model as a class matching number names to the numerals. Discuss what the names start with etc.-Flash numeral name and write the corresponding numeral on individual whiteboards or interactive whiteboard. -Demo game you want chn. to play | Using 10 frame and using concrete materials make amounts from a dice, flashcard etc.Look at how other children have arranged their materials.Verbalise that groups can make a whole. E.g. 2 and 3 is 5, 4 and 1 is 5 etc.Model different ways of recording e.g could be numeral 3, drawing of 3 things, or a group of 2 and 1 | Modelling the use of ‘and’ - that it joins 2 groups to make a total. Using a focus number put out concrete materials then divide the group into 2 groups and place ‘and’ in the middle.Talk about having more than 2 groups to make the same number. E.g. 3 groups 2 and 2 and 2 is 6 or 3 and 1 and 2 is 6or 4 and 1 and 1 is 6 |
| Application (20 mins)Children set to task as teacher observes, assesses & scaffolds as needed. | Application: Chn. In pairs to play above games one is the teacher and change | Application: In groups up to 6 play the Starfish game | Application: In pairs play matching games. Could be concentration or snap etc. | Application: In maths books have a designated number on top of page and get students to draw ways of making that number, finding a group picture from a magazine or a word that has that many letters in it, etc. | Application: Children record for themselves using a focus number for the day and inserting ‘and’ either as a card or writing themselves. |
| Joint conceptualising / meaning making (10 mins) | As a class discuss what they look like as a number and an arrangement(Perhaps get individuals to illustrate different arrangements on the whiteboard.  | As a class teacher could show a group of objects chn. write the numeral ( could be on whiteboards or paper) always ask how did they know it was a particular number. Get children to talk about how they wrote the number.  | -As a class try to come up with ways to remember the numeral names. Ask what they are and how did they know? | As a class bring back to show the different ways chn. completed the task. Model some of the chin’s work. | Discuss how many different ways of finding part part whole |
| Equipment/Resources needed in lesson | -sets of numeral, picture and dot cards (different arrangements) | - dice- class and individual whiteboardsStarfish game needs game board, dice and counters | Sets of numeral cards and name cards to match, play concentration etc. | Numeral cards –name and number, diceTen Frames for each student plus counters or concrete materialsPacks of cards just use 1 to 6 (good sorting activity)Subitising sheet (e.g. ice-creams from website | Cards of ‘and’Concrete materials |
| New Language introduced |  |  |  |  |  |

**\* Beans in a can – Chn. are asked to form different sized groups 0-6 (Could use Random generator on Interactive Whiteboard which generates numbers, names)**

**\*\* Starfish game. Have A4 grid pattern. Dice and counters**

**\*\*\* Developing part/part/whole for higher numbers can take on a similar process just using more dice or dice with great number of sides.**

**\*\*\*\* There are a number of interactive whiteboard games that support developing these concepts**

**Starfish game**

**Up to six players.**

**Children place themselves around the board and choose one number. They each have 6 counters preferably a different colour.**

**Children take turns to throw the dice. If they throw their chosen number place a counter on one of the circles. *Do not put a counter on if someone else throws your number.***

**First one to get 6 counters on reaching the middle is the winner.**

**Play again but can move to have a different number.**

**Smaller numbers of children can monitor 2 numbers or leave that number blank.**

**You could play this gamewith numbers 7-12 using 2 dice.**

**1**

**6**

**5**

**4**

**3**

**2**

***Numeracy Planner***

**Sequence Step 2**

**Big Idea: Part/part/whole**  **Week/Date:**

**Focus/Goal of unit: Sequencing of numbers to 10 - terms before and after**

**Language/vocab:**

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| **Lesson Sequence** | **Stage 1** | **Stage 2**  | **Stage 3**  | **Stage 4**  | **Stage 5** |
| Low Order / Intro Activity (5-10mins) | Game of Buzz orNumber game | Game on interactive board – missing number | Play the card game from yesterday’s application activity as a class or in pairs | Buzz- forwards and backwardsPut a group of numbers in order | .Roll the 10 sided dice as a group. Tell me the number that comes before /after |
| Goal / Purpose of lesson | Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |
| **Goal: Recognise the sequence of numbers up to ten** | **Goal: Identify sequences of numbers that don’t start with 0 or 1** | **Goal: To put random numbers to 10 in order from the smallest to largest. And largest to smallest.** | **Goal: Understanding numbers that come immediately before and after. Recognise the words before and after.** | **Goal:Looking at the difference with numbers that come immediately before or after a number versus finding the number that is closest to a number from a group of random numbers.**  |
| High Order / Modelling (10-15mins) | -Counting forwards and backwards to 10.-Explicitly say that each number has a special place. Some are high or low, a greater or lower number etc.-Sort out jumbled numbers into correct sequences.Could use the numbers only, subitised arrangements, number names, or a mixture to put in order.  | -Counting on as a class from a given number. Use abacus as a visual. Demonstrate number lines on board.Pick a number to 10 and count backwards from that numberPut a sequence of 4 numbers in order. Increase difficulty with a missing number e.g. put in order 8, 3, 7, 5. Starting with lowest number.Model pair game | Remind children that all numbers have a particular order – smallest to highest or highest to smallest.Perhaps compare a couple of numbers using children e.g. make a group of 3 and another of 9. Discuss - which is the smallest group and which is the biggest? etc. Sometimes we only have a few numbers to put in order. Demonstrate using some numeral cards. Refer to a number line that have numbers on them.All could have whiteboards to all have a go at writing the numbers in order. | Using large numbers 0-10 each child holds or wears a number and stands in number order.Pick a \*(star) number. Place a star or something(peg) that distinguishes the chosen number. Have name cards before and after. Ask questions to place name card on the number before etc.Use whiteboards to write a requested number e.g. what comes before 9? | Revisit numbers between 0-10. Explain numbers immediately before and after.Look at other numbers that we could say come before or after a partic. Number.Make link that numbers before are smaller and numbers after are bigger.Practise as a class the activity below.Could also use unifix blocks to build towers to show how as numbers get larger the towers get taller. |
| Application (20 mins) | Children set to task as teacher observes, assesses & scaffolds as needed. |
| **Application: Find the missing number.****Partners: Pack of 10 numeral cards. One hides one card and other person works out the missing number. Extension: Take out 2 numbers.** | **Application: In pairs using a pack of cards 1-10. Shuffle deal out between the pairs. Put into sequence start with the lowest card and then highest. They could take turns to place one of their cards in the line. Remove a card or 2 and see if this makes it more difficult.**  | **Application: In groups of 3 use number packs 1-10. One player could choose 4 random cards. The other 2 write them in order from smallest to largest. Who can do it first?****Change leaders. The leader can say to write from highest to lowest.** | **Application: Complete a sheet requiring the missing before and after numbers.** **Roll a 10 sided dice, record that number in a 3 column grid. Write the number that comes before and after it.** | **Application: Roll a 10 sided dice. Write this number and circle. Record 2 numbers that come before in a colour e.g. blue and 2 numerals that come after in a different colour e.g. red.** |
| Joint conceptualising / meaning making (10 mins) | As a class how did you find this activity? How did you work it out? Were there different ways.  | Class discussion about the activity. What was the most difficult part?  | As a class was it easy or hard. Did you remember to write from lowest or highest when asked? Did you have to refer to the number line? | Discuss how individuals worked it out. What did you do if you rolled a 10?  | Discuss activity. How did it go? Do one more as a class. |
| Equipment/Resources needed in lesson | Number cards to tenNumber names and subitised arrangements.Could use playing cards – numbers 1 to 10 only | Playing cardsAbacusBlank number lines | Numeral cards Number lines 1 – 10Individual whiteboards | Large numeral cards to hold or wear.Cards with a star or a peg to attach. Before and after name cards.10 sided diceWhiteboards | Large number cards 0-1010 sided diceBefore and after name cardsUnifix blocks  |

**A similar sequence can be used for higher numbers using 2 dice or dice with greater number of sides.**

**There are also numerous interactive whiteboard games that can support developing these concepts.**

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**Sequence Step 3**

**Big Idea: Ordinal Numbers**  **Week/Date:**

**Focus/Goal of unit: Understanding the concepts of ordinal numbers and recognise number and word recording**

**Language/vocab:**

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| **Lesson Sequence** | **Stage 1** | **Stage 2**  | **Stage 3**  | **Stage 4**  | **Stage 5** |
| Low Order / Intro Activity (5-10mins) | Perhaps a quick activity to see who can write their name first or bounce a ball 3 times just to intro the lesson and the term first. Usually know what this one means | Game of buzz but use ordinals. So maybe buzz on 4th.Form groups of 4 and put in order from shortest to tallest. They can tell you who is the 2nd shortest etc. | Revise 1st – 3rd in number and word form. Have some simple drawings eg train with several carriages . Get child to ring the third carriage. Change the engine to the other end. Will the third carriage be the same one? | Counting by ordinal numbers as high as you like |  |
| Goal / Purpose of lesson | Make explicit to the students the purpose of the lesson, what they will know by the end, etc. |
| **Goal: To understand the language of ordinals** | **Goal: to recognise and write the numbered form of ordinals e.g. 1st 2nd 3rd and the word form first, second third.** | **Goal: To understand recognise and write 4th – 10th plus in word form** | **Goal: To consolidate ordinals 1st -10th. Extend if you can.****Also the language of last, second to last**  |
| High Order / Modelling (10-15mins) | Outside activity where class watches one group run, skip etc. And discuss who came first second last. Change groups to allow everyone to have a turn in competing and discussion.Explicit explanation that the order of numbers relates to the ordering of numbers but they have different names. Number 1 is first, 2 is second etc.  | Introduce the number form of ordinals. Try to get them to hear the end sound relating to the end sound of the word. Show word form.Match the word with number formFlash the cards students clap when they see 3rd either in number or word.Whiteboards. – writing 1st -3rd. – number form. | Explain the other numerals to 10 have an ordered place name. They are all in the ’th’ family.Look at cards with name and numbered forms. Mix and match. Could play a class game of concentration. | **Lots of activities** * 1st letter of their name
* 2nd letter etc.
* Days of the week –which is the first school day/
* Months of the year
* Interactive whiteboard activities
* Stencils
* Calendar work e.g. Using old calendars ask questions such as find the second Thursday of the month etc.
* On a stencil of a calendar month write the ordinal in each space on the number 1 square write 1st and so on.
* **Ordinal Course -**On the playground label different stations with the words “first” through “tenth.” At each station have instructions such as hop six times on one foot then go to the seventh station. Start your children at different stations; pair students as needed. Watch the fun!
 |
| Application (20 mins) | Children set to task as teacher observes, assesses & scaffolds as needed. |
| **Application: In groups play starfish game to see who finishes first second ...last. They will have to ply out the game unless they can work out a way of determining the order. Record the order of names Play twice. Is the finishing order the same?**  | **Application: Cut and paste the 5 people in a race. One is just crossing the finishing line.****Cut and paste 1st to 3rd near the people in a race in the correct order.**  | **Application:**  | **Application:** **Lots of ordinal activities occur during a school day especially lining up, races, packing up who will fish 1st or 3rd?**  |
| Joint conceptualising / meaning making (10 mins) | Perhaps could ask questions re results of game. E.g. Stand up those who came first in the first game...last in the first game. Note how you are differentiating between first and second games. This is demonstrating ordinals use in our language. | Did everyone have the same way? Did it matter?  |  |  |  |
| Equipment/Resources needed in lesson |  | Ordinal cardsStencil with pictures of 2 people and the number form of 1st to 3rd. |  |  |  |





**2nd**

**3rd**

**1st**

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

**Big Idea:** Trusting the Count   **Focus/Goal of unit:** developing part-part-whole knowledge

**Language/vocab:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Lesson Sequence** | **Stage 1**  | **Stage 2** | **Stage 3** | **Stage 4** | **Stage 5** |
| Low Order / Intro Activity (5-10mins) | Use multiple representation cards (1-5) , flash them and students call out what they see | Repeat Lesson 1’s subitising activity. | Subitising to 10 flash cards (ten frame) | Subitising to 10 flashcards (ten frame random) | Using 10 frame subitising cards have students record the number and one part-part-whole example |
| 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) | Present subitising cards one at a time, to students asking. “How many dots are there?” Show the cards for 1-2 seconds so that students cannot count individual dots. Have students write the number on individual whiteboards. Proceed through each card, asking “What do you see? How do you know?” e.g. “I can see a 3 because there’s a 2 and a 1” | Extend Lesson 1 to numbers to 10 to begin developing part-part-whole concept.Continuing to pose questions, “What do you see? How do you know?” e.g. “I see 5 and 2 so there are 7 dots.” | Place a group of less than 10 pop sticks on the floor e.g.7. Ask students, “How many are there? What do you see? How do you know?” Then pick them up and place them in a cup. Place another group of pop sticks (3 or less) on the floor. Ask students, “How many would I have altogether if I put these into the cup with the others?”Having to find the total number of pop sticks in the cup without recounting them all individually will encourage ‘trusting the count’. E.g. for 7 think 8, 9, 10. Continue adding 1, 2 or 3 pop sticks for collections up to 20. | Grab a small handful of ‘magic beans’ (less than 10) and tell the students “I’ve got...beans”. e.g. “I’ve got 8 beans”.Throw them on the floor and look at the number of white beans and the number of gold beans. Count and discuss what the students notice. Repeat. In particular, discuss part-part-whole knowledge, e.g. the number 8, 1 gold and 7 white, 2 and 6, 3 and 5, 4 and 4.Students should then, with a partner, repeat this activity with some beans – recording the variety of outcomes | Use 10 counters and arrange them on 2 flash cards. Describe the arrangement e.g. I have 2 counters on one card and 8 counters on the other. Explore as many different possibilities for arranging 10 counters, recording them as you go. Discuss which arrangement was the most efficient, the easiest to see 10. Why? Demonstrate 10 on a ten frame. Choose another number and have students model on a blank 10 frame e.g. 7 is a 3 and a 4, a 2 and a 5. Record in books using stickers to represent counters.Continue working in pairs until all numbers are represented. |
| Application (20 mins) | Children set to task as teacher observes, assesses & scaffolds as needed.  |
|  |  |  |  |  |
| Joint conceptualising / meaning making (10 mins) | Continue posing questions, “What do you see? How do you know?” Attempt to elicit a response from each student. | Continue posing questions as above. Ask students how else each number could be represented eg. 7 could also be 3 dots and 4 dots | Discuss strategies.  | Ask for examples from the students and record on the board or demonstrate. Were there any other answers? What strategies did students use?  | Discuss each number and explore the different representations found. Ensure students record any that are missing.  |
| Equipment/Resources needed in lesson | Subitising cards (1-5) Multiple representation cards | Subitising cards | Plastic cupsPop sticksSubitising cards | Magic beans (lima beans with one side sprayed gold) | CountersBlank flash cardsStickersEmpty 10 frames for each student |

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

**Big Idea:** Trusting the Count  **Focus/Goal of unit:** Develop an understanding of comparing amounts up to 10

**Language/vocab:** greater than, less than, same as and equals(using comparative language)

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| **Lesson Sequence** | Stage 6 | **Stage 7** | **Stage 8**  | **Stage 9** | **Stage 10** |
| Low Order / Intro Activity (5-10mins) | Roll a dice and make that number from concrete materials e.g unifix cubes | Revisit previous day’s activity briefly with partner. Revisit correct language. | Revisit Greedy Duck game as a whole class. Use the game to compare girls / boys, blue clothes / not blue clothes | Revisit game from previous lesson. Use subitising cards / domino cards and use the correct symbol | Revisit yesterdays game |
| Goal / Purpose of lesson | To compare numbers using same as, greater than and less than | Represent and record same as, greater than, less than in an informal manner | Introduce formal symbol for greater than / less than | Consolidating knowledge of symbols using numbers up to 10 | Introduce assessment tool for greater than / less than/ same as |
| High Order / Modelling (10-15mins) | Sit children in circle and one rolls dice and makes that number using unifix blocks – next child rolls and makes that number. Ask – Which is bigger? Which is smaller? How do we know?Introduce language greater than and less than. | Introduce ‘Greedy Duck’ game to class.Play as a class i.e. teacher vs students | Explain that the Duck game is always taking / eating the bigger / greater numberExplicitly model correct recording of greater than / les thanPractice as a class | Same game but with a 10 sided dice as a whole group | Introduce recording sheet and play as a class – model different ways of recording e.g. numerals, dots, concrete materials |
| Application (20 mins) | Students continue with same activity in pairs – exploring greater than and less than | Play game in pairs | Play game in pairs | Play game in pairs | Play game in pairs thenPlay Individually to assess understanding |
| Joint conceptualising / meaning making (10 mins) | Bring children back into circle and have 1 go each in front of the class. Students to explain their results using the correct language. | How did we go? What did we find out? What if the numbers were the same? | How did the game go? How was it different from using the duck?  | How did the game go using a 10 sided dice? Was it harder? | Extension – play game using different recording methods |
| Equipment/Resources needed in lesson | 6 sided diceUnifix | Greedy Duck game boardDicecounters | DiceRecording sheetWhiteboard markers | Subitising cards / domino cards10 sided diceRecording sheet Whiteboard markers | Assessment sheet on paperLaminated set of assessment sheetsRelevant materials eg concrete etcWhiteboard markers |

**Note:**

1. Each lesson may take more than one day depending on the group of students

2. ‘Greedy Duck’ game can be adapted according to the needs of the group e.g. instead of using concrete materials to make the numbers they can write the numerals

3. As children become more advanced they can roll 2 dice and add numbers together, use a 10 sided dice or use number cards

4. The first time that the game is played concrete materials are used to record number. Teacher decides from then on which way students will record

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**TRUSTING THE COUNT – ACTIVITIES TO BUILD UNDERSTANDING**

1. Use Multiple Representation cards to build mental image of numbers

* Recognising that “three” means a collection of three whatever it looks like
* Recognising that the last number counted represents the number in the collection
* Recognising collections of up to five objects without counting (subitise)
* One is a snail, ten is a crab book

2. Make, count, name and record numbers to 5 and then build to 10

* Matching words and/or numerals to collections less than 10 (knowing the number naming sequence)
* Reading, writing and using the words and numerals for the numbers 0 to 9
* Provide opportunities to *count on from hidden*, where the collection or numeral hidden is less than / equal to 5
* Practice counting collections and oral counting to establish the number naming sequence
* Check and consolidate the link between collections, number words and numerals
* Practice *counting on from*1, 2, or 3 using a conventional 6 sided dot dice and another dice with 1-3 in dots and 1-3 as numerals, cover 1, 2, or 3, then count on the dots on the other dice.

3. Part-Part-Whole numbers to 5

* Being able to name numbers in terms of their parts (part-part-whole)
* Cuisenaire rods useful for developing part-part-whole, compare and order...
* Use subitising cards to encourage students to recognise small number without counting (subitising) and build *part-part-wholes ideas* for numbers 1-5 (e.g. 4 is 1 and 3, 2 and 2, 1 less than 5 etc).

4. Build on for numbers to 10

* Teach students to grab the larger number and put it up in the air and then count on
* Use ‘bead string’ is useful for ‘make to ten’ strategy
* Develop a class book for each number based on part-part-whole ideas
* Practice *counting on from given* e.g. use a set of numeral cards and a 6 or 10 sided dice, say the number and count on dots displayed on dice.
* Model counting on 2, 3 or 4 by starting from given and clapping as you count, e.g. 5...6 (clap), 7 (clap), 8 (clap), 9 (clap). Repeat with different starting numbers and fingers or taps instead of clapping. Taps can mirror familiar pattern, e.g. if counting on 5, taps could be spatially located to represent 5 pattern on a dice.
* Dominoes
* Part whole cards

5. Subitising to 10 and building to 20

6. Counting on number sequences

7. Skip counting from 0

8. Trusting the count to 10

* Use 10 frames and subitising cards to promote subitising and the development of part-whole ideas for the numbers 5-10 (that is, that 7 is 1 more than 6, a 5 and 2, or a 3 and 4).
* Make this knowledge explicit by asking students to say what they know about a given number, e.g. “6 is double 3”, “it’s 2 more than 4, 1 less than 7, 4 less than 10” and so on. Record on posters and display, review regularly.

9. Read, write and order numbers to 100, developing mental images.