



Numeracy in the early years

St Bernard's, Berowra



NUMERACY HOUR



Early development of Maths concepts

- Maths has changed, with an increased focus on mental computation.
- As a parent, you have an important role in exposing your child to numbers.
- Research shows that young children need to play with mathematical ideas before being introduced to written sums. Much of this can be done at home.
- Lots of talk and discussion are necessary before children can build a deep understanding of the main ideas in mathematics and apply them in numeracy.

Early development of Maths concepts

- Important to develop a powerful and flexible understanding of how numbers are used.
- Students move through a variety of growth points in the following areas:
 - counting
 - place value
 - addition and subtraction
 - multiplication and division.

These growth points have been outlined on the following from the Combined Growth Framework used by the Broken Bay Diocese.



Counting Growth Points

GP 0 (a)

- cannot count forward/backwards from 1 – 10.

GP 0 (b)

- can count forwards/backwards 1 – 10.
- cannot produce the number word just after a given number word 1-10.
- Subitises using common representations of up to 6.



Counting Growth Points

GP 0 (c)

- can count forwards/backwards from 1 to 10.
- can produce the number word just after a given number word but drops back to 'one' when doing so.
- can not reliably count a collection to 20



Counting Growth Points

GP 1

- can count forwards/backwards 1 to 20.
- may not be able to reliably count a collection to 20
- can produce the number word just after a given number word in the range one to ten without dropping back.
- has difficulty producing the number word just after a given number word, for numbers beyond ten.
- subitises collections of up to 10 dots.



Counting Growth Points

GP 2

- can count forwards/backwards from 1 – 30.
- can produce the number word just after a given number in the range 1-30, without dropping back.
- may be able to count forwards beyond 'thirty'.
- can recognise that the number of objects in a collection does not change if the objects are rearranged (conservation of number)
- makes reasonable estimates of up to 20 objects in a collection



Place Value Growth Points

GP 0

Numeral Identification and Recognition

- May recognise some, but not all numerals in the range of '1' to '10'.

Place Value

- Does not recognise 'ten' as a composite unit (something that can be broken up)



Place Value Growth Points

GP 1

Numeral Identification and Recognition

- represents numbers 0 -9 with objects
- reads all digits 0-9
- writes all digits 0-9
- matches all digits 0-9 to sets of objects
- orders random digits 0-9

Place Value

- Does not recognise 'ten' as a composite unit
- Can count up and down by 10s on and off the decade with concrete/pictorial material. Eg. 56, 66, 76,etc

Place Value Growth Points

GP 2

Numeral Identification and Recognition

- reads 2-digit numerals
- writes 2-digit numerals
- matches 2-digit numerals to sets of objects
- orders random 2-digit numbers
- uses the terms 'more than', 'less than' when comparing 2-digit numbers
- identifies the smallest and largest numbers when given 2 digits
- rounds 2-digit numbers to the nearest 10

Place Value

- models groups of 10-90 as groups of 10s and 1s
- states the number of 10s and 1s in 2-digit numbers
- Identifies 10 more and 10 less than a 2 digit number
- Counts up and down flexibly by tens and ones on and off the decade **with screened items** (items that cannot be seen)
- Models split and jump strategies with the support of concrete materials

Making a good start to school

It gives students a good start if they are able to:

- Talk about their age and recognise some numbers.
- Count a group of collections up to about 10
- Sort things into 'similar' and 'different' and talk about why.
- Use words to compare items – 'this is the biggest', 'This one is short', 'My drink bottle's empty', 'I want the longest piece of ribbon' etc.
- Use words to describe position – 'it's under the chair beside the dolly, next to the table etc.

Ways you can assist your child preparing for school

Provide your children with real life maths opportunities:

- Read stories which involving counting.
- Expose children to TV shows such as play school.
- Listen to songs and rhymes.
- Get children to not only rote count, but show one to one correspondence with items up to 10. eg. count the steps or how many yellow cars have we passed.
- Count backwards from 10 and then open your eyes.
- Show children what numbers look like as numerals, pictures and words eg. cards, charts, blocks etc.

- Play dice games and dominoes so students can subitise numbers.
- Play board games that require counting spaces eg. trouble, snakes and ladders.
- Play card games where children need to match numbers that are the same eg. snap.
- Use the words more than or less than.
- Sharing food equally.
- Ordering numbers.
- Matching numbers to quantities.
- Use the word zero when there is nothing left.
- Get children to complete puzzles to give them spatial awareness and problem solving abilities.

- Ask children real life problems, eg. How many apples are there? Do we have enough crayons for everyone?
- Ask children what one more or one less would be.
- Get children to compare objects eg. how many, size, length etc.
- Cook with your child
- Recognising and naming simple 2D shapes - circle, square, triangle, rectangle.
- Discuss money so children can identify coins and their value
- If children count beyond 10, ensure they say 'teen'.

Glossary

- Mental computation: using strategies to work out problems in your head eg. Jump strategy, split strategy (see definition next slide)
- Subitise: The skill of immediately recognising the number of objects in a small collection without having to count the objects. Eg. Seeing dots on a dice and not needing to count them.
- Ten as a composite number: "Ten is composed of ten ones at the same time as being one unit called ten. The composite nature of ten allows it to be collected as multiples of ten as well as being re-formed by trading ten ones". (*Developing Efficient Numeracy Strategies, Stage 2, page 7*)
- Numeral Identification: Numerals are the written and read symbols for numbers. Learning to identify, recognise and write numerals is an important part of early arithmetical development. (*Count Me in Too, Department of Education and Training*)

Glossary

- Place Value: To understand place value, students need to be able to view a group of ten as one (composite) unit. Many of the processes needed in addition and subtraction require students to "see" the ten in numbers. For example, in the number 24, the student needs to have an understanding that this number represents two tens and four ones. (*Count Me in Too, Department of Education and Training*)
- Split strategy: An addition or subtraction strategy in which the student separates the number according to place value
eg. $14 + 23 = 10 + 20 + 4 + 3$
 $= 37$
- Jump strategy: An addition or subtraction strategy in which the student counts forward or backwards firstly by tens and then by ones to perform a calculation.
eg $46 + 33 = 46 + 10 + 10 + 10$
 $= 76 + 1 + 1 + 1$
 $= 79$
- Concrete materials: Hands on materials to support learning eg. Blocks, number charts, counters, paddle pops sticks etc.