## Appendix A: The Learning Framework for Number

The Learning Framework for Number is based on the Count Me In Too professional development package (1999), the New South Wales Department of Education and Training.

Stages of Early Arithmetic Learning (SEAL)

## Stage \& Behavioural Indicator

0 Emergent Counting
Cannot count visible items. The child either does not know the number words or cannot co-ordinate number words with items.
1 Perceptual Counting
Can count perceived items but not those in concealed collections. This may involve seeing, hearing or feeling items.
2 Figurative Counting
Can count concealed items but counting typically includes what adults might regard as redundant activity. For example, child "counts all" rather than "counts on".
3 Counting-on (Advanced Count-by-one Strategies)
Child counts-on rather than counts from 1 to solve addition or missing addend tasks. The child may use a count-down-from strategy to solve removed items tasks (e.g., 17 3 as $16,15,14-$ answer is 14 ) or count-down-to strategies to solve missing number tasks (e.g., $17-14$ as 16 put up one finger, 15 put up another finger, 14 put up another finger - three fingers showing means $17-14=3$ ).
4 Facile number sequence (Use of Part/Whole thinking)
The child uses a range of strategies not involving count-by-one. For example: a compensation using a known result, adding to ten, commutativity, subtraction as the inverse of addition, awareness of the meaning of "ten" in a teen number.

## Forward Number Word Sequence (FNWS)

## Stage \& Behavioural Indicator

0 Emergent FNWS
The student cannot produce the FNWS from 1 to 10.
1 Initial FNWS up to 10
The student can produce the FNWS from 1 to 10 . The student cannot produce the number just after a given number in the range 1 to 10 . Dropping back to 1 does not appear at this level.
2 Intermediate FNWS up to 10
The student can produce the number word just after a given number word but drops back to 1 when doing so.
3 Facile with FNWS up to 10
The student can produce the number just after a given number in the range 1 to 10 without dropping back. The student has difficulty producing the number just after a given number for numbers beyond 10 .
4 Facile with FNWS up to 30
The student can produce the FNWS from 1 to 30 . The student can produce the number just after a given number in the range 1 to 30 without dropping back.
5 Facile with FNWS up to 100
The student can produce the number just after a given number in the range 1 to 100 without dropping back.

## Backward Number Word Sequence (BNWS)

## Stage \& Behavioural Indicator

0 Emergent BNWS
The student cannot produce the BNWS from 1 to 10 .
1 Initial BNWS up to 10
The student can produce the BNWS from 1 to 10 . The student cannot produce the number just before a given number in the range 1 to 10 . Dropping back to 1 does not appear at this level.
2 Intermediate BNWS up to 10
The student can produce the number just before a given number but drops back to 1 when doing so.
3 Facile with BNWS up to 10
The student can produce the number just before a given number in the range 1 to 10 without dropping back. The student has difficulty producing the number just before a given number for numbers beyond 10 .
4 Facile with BNWS up to 30
The student can produce the BNWS from 1 to 30 . The student can produce the number just before a given number in the range 1 to 30 without dropping back.

## 5 Facile with BNWS up to 100

The student can produce the number word just before a given number in the range 1 to 100 without dropping back.

## Numeral Identification (NID)

## Stage \& Behavioural Indicator

0 Emergent Numeral Identification
Cannot identify most of the numerals in the range 1-10.
1 Numerals to 10
Can identify all the numerals in the range $1-10$ only.
2 Numerals to 20
Can identify all the numerals in the range 1-20 only.
3 Numerals to 100
Can identify one and two digit numbers.
4 Numerals to 1000
Can identify two and three digit numbers.

## Base Ten Strategies (Base 10 or BTS)

|  | Stage \& Behavioural Indicator |
| :--- | :--- |
| $\mathbf{1}$ | Initial Concept of Ten <br> The child does not see ten as a unit of any kind. The child's focus is on the individual <br> items that make up ten. A necessary condition for attaining level 1 is attainment of at <br> least stage 3 in the Stages of early Arithmetical Learning. |
| $\mathbf{2}$ | Intermediate Concept of Ten <br> Ten is seen as a unit composed of ten ones. The child is dependent on representations <br> of units of ten such as hidden tens strips or open hands of ten fingers. The child can <br> perform addition and subtraction tasks involving tens where these are presented using <br> materials such as covered units of tens and ones. The child cannot solve addition and <br> subtraction tasks involving tens and ones when these are presented as written number <br> sentences. |
| $\mathbf{3}$Facile Concept of Ten <br> The child can solve addition and subtraction tasks involving tens and ones without <br> using materials. The child can solve addition and subtraction tasks involving tens and <br> ones when these are presented as written number sentences. |  |

