

## LFIN Aspects and Levels / Stages

### ASPECT Bi: Numeral Identification (NI)

Level Number	Level Descriptor	Characteristics
0	Emergent	Not able to identify some or all 1-digit numerals
1	One-digit numerals	Able to identify <b>1-digit</b> numerals e.g. 5
2	Two-digit numerals	Able to identify <b>2-digit</b> numerals e.g. 34
3	Three-digit numerals	Able to identify <b>3-digit</b> numerals e.g. 452
4	Four-digit numerals	Able to identify <b>4-digit</b> numerals and beyond e.g. 1025

### ASPECT D: Counting as a problem solving process (Early Arithmetic Strategies)

Stage Number	Stage Descriptor	Characteristics
0	Emergent counting	Cannot count visible items. The child might not know the number words or might not coordinate the number words with the items
1	Perceptual counting	Can count only <b>visible</b> items start from 1. Including seeing, hearing and feeling
2	Figurative counting	Can count <b>concealed items</b> but with at redundant (even after being shown that two groups of sweet each is 20 and you ask what is the answer the learner will still go and recount again.
3	Initial number sequence	Initial number sequence. The child can <b>count on</b> rather than counting from one, to solve + or missing addends. May use the <b>counting down</b> to solve removed items. (count-back-from)
4	Intermediate number sequence	Count-down-to to solve missing subtrahend (e.g. 17-3 as 16, 15 and 14 as an answer. The child is able to use a more efficient way to count down-from and count down-to strategies (count-back-to)
5	Facile number sequence	Uses of range of <b>non-count-by one strategies</b> . These strategies such as compensation, using a known result, adding to 10. Commutativity, subtraction as the inverse of addition, awareness of the 10 in a teen.

### ASPECT Bii: Forward and Backward Number Word Sequences (FNWS & BWNS)

Level Number	Level Descriptor	Characteristics
0	Emergent	Not able to produce Forward / Backward Number Word Sequence
1	sequences in the range 1 to 10	Able to produce the Forward / Backward Number Word Sequence from <b>1 to 10</b>
2	sequences in the range 10 to 100	Able to produce Forward / Backward Number Word Sequences in the <b>range 1 to 30</b>
3	sequences in the range 100 to 1000	Able to produce Forward / Backward Number Word Sequences in the <b>range 1 to 50</b>
4	sequences in the range beyond 1000	Able to produce Forward / Backward Number Word Sequence in the <b>range 1 to 100</b>
5	sequences in the range beyond 1000	Able to produce Forward / Backward Number Word Sequence in the <b>range beyond 100</b>

### ASPECT A: Pattern and number structure (Structuring numbers 1 to 20)

Stage Number	Stage Descriptor	Characteristics
0	Emergent	Cannot immediately identify a quantity of 2
1	Instant	Recognises (subitises) a quantity of 2
2	Repeated	Recognises, describes and continues a linear repeated pattern of 2
3	Multiple	Creates a linear pattern of repeated units of a specified size
4	Part-whole to 10	Uses additive whole-part knowledge to 10. Knows number combinations to 10 and how many more are needed to make 10.
5	Part-whole to 20	Uses additive whole-part knowledge to 20. Knows number combinations to 20 and how many more are needed to make 20. Able to partition numbers up to 20.
6	Number properties	Understands the structural properties of numbers including how to regroup e.g. $9 \times 6 = 6 \times 6 + 3 \times 6$

### ASPECT C: Conceptual Place Value (CPV)

Level Number	Level Descriptor	Characteristics
1	Initial concepts of 10 (ten as a count)	Not able to see ten as a unit composed of ten ones. The child solves tens and ones tasks using a <b>counting-on or counting-back strategy</b> . One 10 and 10 ones do not exist for the learner at the same time
2	Intermediate concepts of 10 (ten as a unit)	<b>Able to see ten as a unit composed of ten ones.</b> The child uses incrementing and decrementing by tens, rather than counting-on-by-one to solve uncovering board task. <b>The child cannot solve addition and subtraction tasks involving tens and ones when presented as horizontal written number sentences</b>
3	Facile concepts of 10 (tens and ones)	<b>Tens and ones are flexibly regrouped.</b> Ten is a unit that can be repeatedly constructed in place of 10 individual ones. Child is able to solve addition and subtraction tasks involving tens and ones when presented as horizontal written number sentences by adding and/or subtracting units of tens and ones
4	Hundreds, tens and ones	Child demonstrates a growing confidence and flexibility in working with hundreds as groups of ten in a multiplicative ( $100 = 10 \times 10 = 20 \times 5 = \dots$ ) and additive way
5	Decimal place value	Child has multi unit sense of decimals (tenths and hundredths)
6	System place value	Child appreciates that the place value system (as powers of ten) can be extended indefinitely to the left and right of the decimal point. Recognises that can make a number as large as or as small as you like by repeatedly multiplying (or dividing) by 10.

### ASPECT E: Early Multiplication and Division

Level Number	Level Descriptor	Characteristics
0	Initial grouping and perceptual counting (Forming equal groups)	Able to model or share by dealing in equal groups but not able to see the group as composite units; <b>count each item by ones.</b>
1	Intermediate composite units (Perceptual multiples)	Able to model equal groups and counts using rhythmic, skip or double counting; counts by ones the number of equal groups and the number of items in each group at the same time <b>only if the items are visible.</b>
2	Abstract composite units (Figurative units)	Able to model and counts <b>without visible items</b> i.e. the learner can calculate composites when they are screened, where they are no longer rely on counting by ones. The child may not see the overall pattern of composites such and "3, 4 times".
3	Repeated addition and subtraction	Co-ordinates composite unites in repeated addition and subtraction. Uses a composite unit a specific number of times as a unit e.g. $3 + 3 + 3 + 3$ ; may not fully co-ordinate two composite units.
4	Multiplication and division as operations	Two composite units are coordinated abstractly e.g. "3 groups of 4 makes 12"; "3 by 4" as an array
5	Know multiplication and division facts strategies	Recalls or derives easily, known multiplication and division facts; flexibly uses multiplication and division as an inverse relationship, is able to explain and represent the composite structure in a range of contexts.

### ASPECT F: Learning Fractions

Stage Number	Stage Descriptor	Characteristics	
0	Emergent partitioning	Partitioned fractions: fractions as part of collections or parts of objects	Breaking things into parts and allocating with no regard to the size of the pieces
1	Halving		Forming <i>equal</i> pieces as the basis of determining equality. Forms halves, quarters and eights by repeated halving.
2	Equal partitions		<b>Verification</b> (or recognition) of particular partitions (continuous and discrete) not the ability to make the partitions themselves
3	Re-forming the whole	Quantity fractions: fractions as numbers	<b>Re-forming</b> iterated partition into equivalent unit-whole i.e. improper to mixed numbers e.g. $\frac{5}{4}$ into 1 whole and $\frac{1}{4}$
4	Multiplicative partitioning		Coordinates composition of partitioning. Creates equivalent fractions using equivalent wholes.
5	Fractions as numbers		Understanding fractions as numbers, recognising that fractions are part of an abstract universal unit of one (that is always the same size), which is independent of context. Development of a sense of size of fractions as numerical quantities