

Aspect Descriptions

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

Description:

- **Facility with key number combinations and partitions:** knowing these is important for calculations beyond 20
 - Adding to 5
 - Doubles and halves to 10
 - Adding combinations under 10
 - Bonds of 10
 - 5 + something
 - 10 + something
 - Bridging 10
 - Doubles and halves to 20
- **Part-whole construction of number:** seeing numbers as made up of other numbers is a conceptual advance on seeing them as things that need counting. Further advances in number concepts depend on this: multi-digit numbers as 1s, 10s, 100s etc., fractions as part of a whole number, numbers as multiples of factors etc.
- **Relational thinking:** restricted to rehearsed procedures or makes relationships?
- **Additive strategies:** reliance on counting strategies or non-counting strategies?

How to identify levels:

ASPECT B: Numeral Identification

Description:

Numerals are the written and read symbols for numbers. Learning to identify, recognize and write numerals is an important part of early arithmetical development. This is the ability to state the **name** of a displayed number. Learning to identify numerals is one of the important parts of early numeracy development.

How to identify levels:

This is based on whether a child makes errors or not. If a child makes no errors at all with two-digit numerals but makes an error with three-digit numerals, s/he will be judged to be at Level 2.

ASPECT B: Forward Number Word Sequences

Description:

The learners' ability to count forward a sequence of numbers as well as being able to identify numerals.

How to identify levels:

To assess learners' FNWS, learners are asked to start counting forward (e.g. 1 to 32) or to say the number that comes after "5". Additionally, they are asked to sequence a series of numbers.

To be able to count on, children need to be able to say forward number word sequences correctly without missing any number.

ASPECT B: Backward Number Word Sequences

Description:

Similarly, to be able to count backwards, children need to be able to say correctly backward number word sequences without missing any number.

How to identify levels:

Learners are asked to start counting backwards (e.g. 20 to 0) or to say the number that comes before "5".

To be able to count back, children need to be able to say backward number word sequences correctly without missing any number.

ASPECT C: Conceptual Place Value (CPV)

Description:

The CPV tasks involve flexibly incrementing and decrementing by ones, tens and hundreds in a setting of base-10 materials. One aim is for students to construct more sophisticated units of 10 and 100, including becoming less reliant on base-10 materials.

- Bundling sticks are wooden craft sticks tied in bundles of ten
- Base-ten dot materials are laminated cards with printed dots, including short strips with 1–9 dots, 10-dot strips and 100-dot squares.
- Flard cards are a set of cards with numerals, including 1–9, 10–90, 100-900 and 1000–9000, the cards can be stacked to form 3- and 4-digit numerals.
- The empty number line is an unstructured line used for marking jump strategies.
- A numeral roll is a long strip of paper showing a sequence of numerals, used for reading or checking number sequences.

How to identify levels:

ASPECT D: Addition and subtraction 1 to 100: (Early Arithmetic Strategies)

Description:

In early addition and subtraction in the range 1 to 20, students can progress from using strategies involving counting by ones to using more facile strategies that do not involve counting.

How to identify levels:

To determine a child’s strategies, present the child with tasks or situations that are problematic for him or her. In such situations the child’s goal, we assume, is to resolve the difficulty, i.e. to solve the problem as he or she constructs it. In doing so the child uses a current strategy or may construct a strategy, which is novel for that child. Then the child’s stage in early arithmetical learning (SEAL) is determined as shown in the table.

ASPECT E: Early Multiplication and Division

Description:

How to identify levels:

Tasks 1 – 4: Determine if child operates at level 1 or 2.
 Assign to level 1 if child counts everything in ones
 Assign to level 2 if child counts in multiples
 Tasks 5: determine if child operates at level 3 or 4.
 Assign to level 3 if

Coding the child’s script:

Allows identification of:

- child’s strengths and weaknesses
- child’s patterns of responding
- of correct LFIN levels and stages

Use these notations when coding a child’s script:

✓	Answer correct	??	Needs time to think
✓✓	Answer correct & confident	?✓	Needs time, then correct
X ✓	Initially incorrect, then self corrects	SC	Child self-corrects
^	Omission of a number in a FNWS or BNWS	IDK	Child says “I don’t know”
Ch.1	Child counts from 1	Ch.On	Child counts on
Ch.DnFr	Child counts down from A counting-by-ones strategy e.g. to solve 11 remove 3, child will go ‘11, 10, 9 – 8!’	Ch.DnTo	Child counts down to Most advanced counting-by-ones strategy e.g. to solve have 11, remove some and there are 8 left, child will go ‘11, 10, 9 – 3!’