Mathematics Assessment Interview 2011–
Growth Point Descriptions – Ballarat Extension

Number, Measurement and Space growth points

Notes:
- Growth Points based on ENRP Numeracy Interview November 2001/2006 + CEO
  Ballarat Extension Interview 2003 + Number Domain Refinement 2011
- Growth points are not necessarily hierarchical, but involve increasingly complex
  reasoning and understanding.
- It must be emphasised that the conclusions drawn in relation to placing students at levels
  within this framework are based on a 30-minute (approx.) interview only. Ongoing
  assessment by the teacher during class will provide important further information for this
  purpose.
- Student understanding may be reported as a "0". This should not be taken as an
  indication of "no knowledge" or "no understanding", but rather as an indication of a lack of
  evidence of "1".

A. Counting

0. Not apparent.
   - Not yet able to state the sequence of number names to 20.

1. Rote counting
   - Rote counts the number sequence to at least 20, but is not yet able to reliably
     count a collection of that size.

2. Counting collections
   - Confidently counts a collection of around 20 objects.

3. Counting by 1s (forward/backward, including variable starting points; more/less)
   - Counts forwards and backwards from various starting points between 1 and 100;
     knows numbers before and after a given number.

4. Counting from 0 by 2s, 5s, and 10s
   - Can count from 0 by 2s, 5s, and 10s to a given target.

5. Counting from x (where x > 0) by 2s, 5s, and 10s
   - Given a non-zero starting point, can count by 2s, 5s, and 10s to a given target.

6. Extending and applying counting skills
   - Can count from a non-zero starting point by any single digit number, and can
     apply counting skills in practical task

7. Extending and applying counting skills – fractions and decimals

B. Place value

0. Not apparent.
   - Not yet able to read, write, interpret and order single digit numbers.

1. Reading, writing, interpreting, and ordering single digit numbers
   - Can read, write, interpret and order single digit numbers.

2. Reading, writing, interpreting, and ordering two-digit numbers
   - Can read, write, interpret and order two-digit numbers.

3. Reading, writing, interpreting, and ordering three-digit numbers
   - Can read, write, interpret and order three-digit numbers.

4. Reading, writing, interpreting, and ordering numbers beyond 1000
   - Can read, write, interpret and order numbers beyond 1000.

5. Extending and applying place value knowledge
   - Can extend and apply knowledge of place value in solving problems

6. Extending and applying place value knowledge – fractions and decimals

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C. Strategies for addition and subtraction

0. Not apparent.
   Not yet able to combine and count two collections of objects.

1. Count all (two collections)
   Counts all to find the total of two collections.

2. Count on
   Counts on from one number to find the total of two collections.

3. Count back/count down to/count up from
   Given a subtraction situation, chooses appropriately from strategies including count back, count down to and count up from.

4. Basic strategies (doubles, commutativity, adding 10, tens facts, other known facts)
   Given an addition or subtraction problem, strategies such as doubles, commutativity, adding 10, tens facts, and other known facts are evident.

5. Derived strategies (near doubles, adding 9, build to next ten, fact families, intuitive strategies)
   Given an addition or subtraction problem, strategies such as near doubles, adding 9, build to next ten, fact families and intuitive strategies are evident.

6. Extending and applying addition and subtraction using basic, derived and intuitive strategies
   Given a range of tasks (including multi-digit numbers), can solve them mentally, using the appropriate strategies and a clear understanding of key concepts.

7. Extending and applying addition and subtraction strategies – fractions and decimals

D. Strategies for multiplication and division

0. Not apparent.
   Not yet able to create and count the total of several small groups.

1. Counting group items as ones
   To find the total in a multiple group situation, refers to individual items only.

2. Modelling multiplication and division (all objects perceived)
   Models all objects to solve multiplicative and sharing situations.

3. Partial modelling multiplication and division (some objects perceived)
   Solves multiplication and division problems where objects are not all modelled or perceived.

4. Abstracting multiplication and division (no objects perceived)
   Solves multiplication and division problems where objects are not modelled or perceived.

5. Basic derived and intuitive strategies for multiplication
   Can solve a range of multiplication problems using strategies such as commutativity and building up from known facts.

6. Basic, derived and intuitive strategies for division
   Can solve a range of division problems using strategies such as fact families and building up from known facts.

7. Extending and applying multiplication and division
   Can solve a range of multiplication and division problems (including multi-digit numbers) in practical contexts