APS Site Improvement Plan – Success Criteria

Goal 3 - Improving student achievement in maths R-7

When we implement an intentional planning process to explicitly teach Number to improve a student's fluency and automaticity, we will improve achievement in Maths R-7

Reception:

Stage Development – Emergent, one-to-one counting, Counting from one on materials

Numbers to 20/facts with 10 - The student is unable to consistently count a given number of objects because they lack knowledge of counting sequences and/or one-to-one correspondence.

The student is able to count a set of objects or form sets of objects but cannot solve problems that involve joining and separating sets.

The student is able to count a set of objects or form sets of objects to solve simple addition and subtraction problems. The student solves problems by counting all the objects.

Australian Curriculum
- Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point
- Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond
- Subitise small collections of objects
- Compare, order and make correspondences between collections, initially to 20, and explain reasoning
- Represent practical situations to model addition and sharing

Year 1:

Stage Development - Counting from one by imaging, Advanced counting

Numbers to 100/place value 100/addition facts – The student is able to visualise sets of objects to solve simple addition and subtraction problems. The student uses counting on or counting back to solve simple addition or subtraction tasks.

Australian Curriculum
- Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero
- Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line
- Count collections to 100 by partitioning numbers using place value
- Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts

Year 2:

Stage Development - Early additive part-whole

Numbers to 1000/place value 1000/single digit multiplication facts - The student uses a limited range of mental strategies to estimate answers and solve addition or subtraction problems. These strategies involve deriving the answer from known basic facts (for example doubles, fives, making tens).

Australian Curriculum
- Recognise, model, represent and order numbers to at least 1000
- Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting
- Solve simple addition and subtraction problems using a range of efficient mental and written strategies

- Recognise and represent multiplication as repeated addition, groups and arrays
- Recognise and represent division as grouping into equal sets and solve simple problems using these representations
- Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences

Year 3:

Stage development - Early additive part-whole

Number to 10 000 place value 10 000/single digit multiplication facts - The student uses a limited range of mental strategies to estimate answers and solve addition or subtraction problems. These strategies involve deriving the answer from known basic facts (for example doubles, fives, making tens).

Australian Curriculum
- Recognise, model, represent and order numbers to at least 10 000
- Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems
- Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation
- Recall multiplication facts of two, three, five and ten and related division facts
- Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies

Year 4:

Stage Development - Early additive part-whole

Number to 10 000 place value 10 000/single digit multiplication facts - The student uses a limited range of mental strategies to estimate answers and solve addition or subtraction problems. These strategies involve deriving the answer from known basic facts (for example doubles, fives, making tens).

Australian Curriculum
- Recognise, represent and order numbers to at least tens of thousands
- Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems
- Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9
- Recall multiplication facts up to 10 × 10 and related division facts
- Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder

Year 5:

Stage Development - Advanced additive/early multiplicative part-whole

Number to 1 000 000/all whole numbers and tenths/multi digit multiplication facts and fractions that add to 1 - The student can estimate answers and solve addition and subtraction tasks involving whole numbers mentally by choosing appropriately from a broad range of advanced mental strategies (for example place value positioning, rounding and compensating or reversibility).
The student uses a combination of known facts and a limited range of mental strategies to derive answers to multiplication and division problems (for example doubling, rounding or reversibility).

Australian Curriculum
- Identify and describe factors and multiples of whole numbers and use them to solve problems
- Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies
- Solve problems involving division by a one digit number, including those that result in a remainder
- Use efficient mental and written strategies and apply appropriate digital technologies to solve problems
- Use estimation and rounding to check the reasonableness of answers to calculations

Year 6:

Stage Development - Advanced additive/early multiplicative part-whole

Number to 1 000 000/all whole numbers and tenths/multi digit multiplication facts and fractions that add to 1 - The student can estimate answers and solve addition and subtraction tasks involving whole numbers mentally by choosing appropriately from a broad range of advanced mental strategies (for example place value positioning, rounding and compensating or reversibility).

The student uses a combination of known facts and a limited range of mental strategies to derive answers to multiplication and division problems (for example doubling, rounding or reversibility).

Australian Curriculum
- Identify and describe properties of prime, composite, square and triangular numbers
- Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers
- Investigate everyday situations that use integers. Locate and represent these numbers on a number line

Year 7:

Stage Development - Advance multiplicative part-whole, Advanced proportional part-whole

The student is able to choose appropriately from a broad range of mental strategies to estimate answers and solve multiplication and division problems. These strategies involve partitioning one or more of the factors (for example place value partitioning, rounding and compensating, reversibility).

The student can estimate answers and solve problems involving the multiplication and division of fractions and decimals using mental strategies. These strategies involve recognising the effect of number size on the answer and converting decimals to fractions where appropriate. These students have strongly developed number sense and algebraic thinking.

Australian Curriculum
- Investigate index notation and represent whole numbers as products of powers of prime numbers
- Investigate and use square roots of perfect square numbers
- Apply the associative, commutative and distributive laws to aid mental and written computation
- Compare, order, add and subtract integers