AMSI | AUSTRALIAN MATHEMATICAL SCIENCES INSTITUTE

NUMBER SENSE AND ALGEBRA – NUMBER PATTERNS & ALGEBRAIC THINKING (NPA)

NPA1 – IDENTIFYING PATTERNS

☐ I can recognise simple patterns in everyday contexts
☐ I can copy simple patterns

NPA2 – IDENTIFYING & CREATING PATTERNS

☐ I can identify standard patterns (dice or dominoes) without counting the individual items
☐ I can create repeating patterns with numbers and shapes, e.g. circle, square, circle, square or 1,2,3 1,2,3 1,2,3

NPA3 – IDENTIFYING REPEATING PATTERNS

☐ I can recognise the repeating unit in a pattern, e.g. ⬤⬤●●●●
☐ I can recognise standard patterns of up to 10, e.g. patterns in tens frames, finger patterns or patterns on playing cards
☐ I can identify the missing element in a pattern involving shapes or objects

NPA4 – CONTINUING NUMBER PATTERNS

☐ I can continue patterns where the difference between each term is the same number, e.g. 2, 4, 6, 8, 10, etc.
☐ I can describe rules for continuing patterns where the difference between each term is the same number, e.g. to find the next number in the pattern 2, 4, 6, 8, 10… you add 2
☐ I can record a list of numbers to identify a pattern or rule
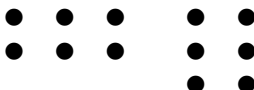
NPA4 – INTRODUCING NUMBER SENTENCES

☐ I can explain that the equal sign means 'is equivalent to' or 'is the same as' not just makes, e.g. $5 + 3 = 6 + 2$
☐ I can find the missing value in a number sentence, e.g. $5 + ? = 6 + 2$

NPA5 – GENERALISING PATTERNS

☐ I can identify elements, including missing elements, in a one-operation number pattern

NPA5 – NUMBER SENTENCES

☐ I can use equivalent number sentences involving addition or subtraction to find an unknown, e.g. $527 + 96 = ?$ *is the same as* $527 + 100 - 4 = ?$
☐ I can use my knowledge of factors and arrays to explain the commutativity in multiplication, e.g.

$$2 \times 3 = 3 \times 2$$

NPA6 – GENERALISING PATTERNS

☐ I can identify a single operation rule in a number pattern and record it as an expression, e.g. 2, 4, 6, 8, 10 … the rule is $n + 2$, or 2, 6, 18, 54 … the rule is $3n$

☐ I can predict a higher term in a pattern using the patterns rule, e.g. find the 10th term in the pattern $3n$

NPA6 – GENERALISING PATTERNS & NUMBER PROPERTIES

☐ I can create and interpret number sentences and explain the relationship between multiplication and division

☐ I can balance number sentences involving more than one operation following the conventions of order of operations, e.g. $5 \times 2 + 4 = 4 \times 2 + ?$

☐ I can recognise that any number multiplied by zero equals zero

NPA7 – REPRESENTING UNKNOWNS

☐ I can use words or symbols (including letters) to express relationships involving unknown values

☐ I can find the value of formulas or algebraic expressions by substituting

☐ I can create algebraic expressions from word problems involving one operation

NPA8 – ALGEBRAIC EXPRESSIONS

☐ I can create and identify algebraic expressions from word problems involving two operations and one unknown

☐ I can recognise equivalent algebraic expressions

NPA9 – ALGEBRAIC RELATIONSHIPS

☐ I can interpret and use formulas and algebraic representations to describe relationships in various contexts, e.g. body mass index or BMI

☐ I can create an algebraic expression with two unknowns to represent a formula or relationship, e.g. Anna has 6 times as many stickers as Carol or A = 6C