Name:

CRAYLANDS MATHS ASSESSMENT

* using concrete objects, pictorial representation

Reasoning statements

FS: Working towards ELG (emerging) SIMS 1	FS: ELG (expected) SIMS 2	FS: Above ELG (exceeding) SIMS 3
Mental calculation: ○ Recognise some numerals of personal significance ○ Recognise numerals 1-5 ○ Recite numbers in order to 10. ○ Order numbers to at least 10 ○ Compare numbers within 10 ○ Find 1 more/ 1 less of any number to 10* ○ Find numbers between 2 given numbers up to 10	**Mental calculation (non-statutory-suggestions):** ○ Recite numbers to 20 forwards and backwards from any number ○ Compare numbers to 20. ○ Recognise numerals to 20 ○ Find 1 more/ 1 less of any number to 20 ○ Find numbers in between 2 given numbers up to 20 ○ Recall addition and subtraction facts for each number up to 5 and beyond* ○ Recall doubles of numbers to 5 + 5* ○ Recall halves of even numbers to 10*	**Mental calculation:** ○ Recall number bonds to 10 ○ Recall addition facts for each number up to 10. ○ Recall subtraction facts for each number to 10 ○ Count in multiples of 2.
Number and Place Value ☐ Count actions or objects which can't be moved ☐ Count up to 5 objects, by saying one number name for each item* ☐ Count out up to 10 objects from a larger group* ☐ Begin to count objects beyond 10* ☐ Selects the correct numeral to represent 1 to 5, then 1 to 10 objects* ☐ Counts an irregular arrangement of up to ten objects* ☐ Estimates how many objects they can see and checks by counting them* ☐ Uses the language of 'more' and 'fewer' to compare two sets of objects*	**Number and Place Value** ☐ Count reliably with numbers 1 to 20 ☐ Place numbers in order up to 20 ☐ **Identify one more or one less than a number up to 20**	**Number and Place Value** ☐ Identify, represent and estimate numbers up to 20 and beyond, using different representations, including the number line ☐ Begin to recognise odd and even numbers to 10. ☐ Write numbers up to 10. ☐ Read numbers in words up to 10.
Addition and Subtraction ☐ Use the language of 'more' and 'fewer' to compare two sets of objects* ☐ Finds the total number of items in two groups by counting all of them* ☐ Finds one more or one less from a group of up to five objects, then ten objects* ☐ In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting* ☐ Record using marks that they can explain	**Addition and Subtraction** ☐ Using quantities and objects add two single digit numbers **and count on to find the answer: U+U*** ☐ **Using quantities and objects subtract two single digit numbers and count on (difference) or back to find the answer: U-U*** ☐ **Solve linked practical problems ***	**Addition and Subtraction** ☐ Explain how they reached their answer in simple addition and subtraction problems. ☐ Select what concrete objects/visual representations they will use independently to answer addition/subtraction problems.
Multiplication and Division ☐ Begins to identify own mathematical problems based on own interests and fascinations*	**Multiplication and Division** ☐ Solve problems including doubling* ☐ Solve problems including sharing*	**Multiplication and Division** ☐ Select what concrete objects/visual representations they will use independently to answer doubling, sharing problems.
Fractions ☐ Begin to use 'half' in everyday situations. E.g. half of a piece of fruit.*	**Fractions** ☐ Solve problems including halving*	**Fractions** ☐ Select what resources they will use independently to answer doubling, sharing problems.
Measurement ☐ Orders two items by length or height. ☐ Orders two items by weight or capacity. ☐ Beginning to use everyday language related to money ☐ Understands some talk about immediate past and future, e.g. '*before*', '*later*' or '*soon*'. ☐ Anticipates specific time-based events such as mealtimes or home time. ☐ Orders and sequences familiar events.	**Measurement** ☐ Use everyday language to talk about: size, weight, capacity, distance, time and money. ☐ Solve linked measure problems*	**Measurement** ☐ Order up to 5 items by length or height. ☐ Order up to 3 items by weight.
Geometry, Position and Direction ☐ Beginning to talk about the shapes of everyday objects, e.g. '*round*' and '*tall*' ☐ Selects a particular named shape ☐ Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. ☐ Can describe the relative position of objects/shapes such as '*behind*' or '*next to*'.	**Geometry, Position and direction** ☐ Use everyday language to talk about position. ☐ Recognise, create and describe patterns. ☐ Explore characteristics of everyday objects and shapes. ☐ Use mathematical language to describe shapes.	**Geometry, Position and direction** ☐ Match and sort 2-D and 3D shapes in activities ☐ Use 2D and 3D shapes to make models, pictures and more complicated patterns

Name:

CRAYLANDS MATHS ASSESSMENT

* using concrete apparatus, pictorial representation including numberlines

KPI Statements

Year 1: working towards expected POS (Emerging: SIMS 4-5)	Year 1: POS (Expected: SIMS 6-7)	Year 1: working at greater depth (Exceeding: SIMS 8-9)
Mental calculation: ○ Recite numbers to 10 as first, second, third …etc (Ordinal numbers) ○ Read and write numbers in numerals to at least 20 (extend to 50) ○ Begin to find numbers between 2 given numbers ○ Recall addition facts for each number up to 10 (Fact families) ○ Recall subtraction facts for each number up to 10 (Fact Families) ○ Recall doubles of numbers to 5+5 ○ Recall halves of even numbers to 10. ○ Count in multiples of 2, 5 and 10	**Mental calculation:** ○ Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. ○ Count in multiples of twos, fives and tens. ○ Given a number, identify one more and one less. ○ Find numbers between 2 given numbers ○ Recall addition and subtraction facts for each number up to 20. ○ Recall doubles of numbers to 10 + 10 ○ Recall halves of even numbers to 20. ○ Add a single digit number to any number up to 20. ○ Take away a single digit number from any number up to 20 ○ Add three one digit numbers Recognise odd and even numbers to 10.	**Mental calculation:** ○ Recall division facts for the 2x ,5x and 10x tables ○ Find 1 more/ 1 less or 10 more / 10 less of any number to 1- 100 ○ find doubles +1 ○ Calculate doubles of numbers to 50 ○ Calculate halves of numbers to 50 ○ Add two two digit numbers ○ Add pairs of multiples of ten to 100 ○ Subtract pairs of multiples of ten to 100 ○ Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward ○ Recognise odd and even numbers to 20.
Number and Place Value ☐ Sort and count up to 20 objects ☐ Represent objects* ☐ Count, read and write forwards from any number 0-10 (extend to 20, then 50) ☐ Count, read and write backwards from any number 0-10 (extend to 20, then 50) ☐ Put numbers from 1 to 20 in order (extend to 50) ☐ Recognise 0 as 'none' and 'zero' in stories and rhymes and when counting and ordering. ☐ Find one more or less than a number up to 20 ☐ Use words like more, less, greater or equal with objects and numbers ☐ Identify and represent numbers on a numberline ☐ Begin to compare numbers and use =, < and > ☐ Begin to recognise the place value of each digit in a two-digit number (tens, ones)	**Number and Place Value** ☐ Count, read and write numbers to 100 in numerals; ☐ Read and write numbers 1 to 20 in words ☐ Identify one more or one less than a number up to 100 ☐ Position numbers to 100 on a number line ☐ Use following words to describe numbers: equal to, more than, fewer (less than), most, least ☐ Represent numbers to 100 using objects (numicon, unifix, base ten,..etc) and pictures	**Number and Place Value** ☐ Identify, represent and estimate numbers up to 100 and beyond, using different representations, including the number line ☐ Begin to recognise the place value of each digit up to 100 (hundreds, tens and units). ☐ Partition numbers in different ways 23 =20 +3 or 2 tens plus 3 ones ☐ Solve problems and practical problem using place value and number facts
Addition and Subtraction ☐ Add by putting two groups of objects together ☐ Understand subtraction as counting back (taking away)* ☐ Understand subtraction as counting on (finding the difference)* ☐ Count on or back from any number up to 20. ☐ Know some words for adding and subtracting ☐ Solve problems using adding and subtracting numbers up to 10*	**Addition and Subtraction** ☐ Read, write, compare and interpret addition and subtraction statements: O and O, TO and O , TO and TO up to 20. ☐ Represent and use number bonds and related subtraction facts within 20 ☐ Use and understand +, - and = signs. ☐ Solve one-step + and – problems * ☐ Solve missing number problems*	**Addition and Subtraction** ☐ Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. ☐ Understand subtraction as take away and as difference and solve linked problems. ☐ Use inverse relationship of + and - to check answers to problems.
Multiplication and Division ☐ Count a set of concrete objects in 2s, 5s and 10s ☐ Continue number sequences linked to the 2x , 5x and 10x tables.	**Multiplication and Division** ☐ Solve one-step x problems * ☐ Solve one step ÷ problems*	**Multiplication and Division** ☐ Estimate answer to calculations and problems. ☐ Practical work to show link between 2 lots of 4 and 4 lots of 2 (commutative).
Fractions ☐ Find and name a half of a shape by folding equally. ☐ Find half of a set of concrete objects by splitting into two equal sets.	**Fractions** ☐ Recognise, find and name a half as one of two equal parts of an object, shape or quantity ☐ Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	**Fractions** ☐ Count on or back in in ½ or ¼ to 10 ☐ Recognise the equivalence of $^{2/4}$ and $^{1/2}$*
Measurement ☐ Tell the time to the hour ☐ Compare and describe measurements using the following language: o lengths and heights [long/short, longer/shorter, tall/short, double/half] o mass/weight [heavy/light, heavier than, lighter than] o capacity and volume [full/empty, more than, less than, half, half full, quarter] o time [quicker, slower, earlier, later] .	**Measurement** ☐ Compare, measure, record, describe and solve practical problems for: lengths and heights, mass or weight, capacity/volume and time. ☐ Recognise and know the value of different denominations of coins and notes ☐ Sequence events in chronological order using simple time language ☐ Recognise and use language relating to dates (days, weeks, months and years) ☐ Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	**Measurement** Discuss and describe temperature in real-life and scientific contexts (e.g. hotter, colder)
Geometry, Position and Direction ☐ Match and sort 2-D and 3D shapes in activities and use them to make models, pictures and patterns ☐ Use everyday words to describe position (such as 'on top', in front of', 'behind', 'in the middle' and 'in between').	**Geometry: Shapes, Position and direction** ☐ Recognise and name common 2D shapes (rectangles- including squares, circles and triangles) ☐ Recognise and name common 3D shapes (cuboids including cubes, pyramids and spheres) ☐ Describe position, direction and movement including whole, half, quarter and three-quarter turns.	**Geometry: Shapes, Position and direction** ☐ Sort 3-D and 2-D shapes in terms of faces, edges and sides and compare them (using terms 'larger', 'smaller', 'curved' and 'straight') ☐ Begin to recognise angles as a property of shape or a description of a turn.

Name:

CRAYLANDS MATHS ASSESSMENT

* using concrete apparatus or pictorial representations

INTERIM STATEMENTS IN BOLD KPI Statements

Year 2: working towards expected POS (Emerging- SIMS 10-11)	Year 2: POS (Expected- SIMS 12-13)	Year 2: working at greater depth- (Exceeding- SIMS 14-15)
Mental calculation: ○ **Count in 2s, 5s and 10s from 0** ○ **Use number bonds and related subtraction facts within 20** ○ **Recall doubles of numbers to 20** ○ find doubles +1 ○ Add pairs of multiples of ten to 100 ○ Subtract pairs of multiples of ten to 100	**Mental calculation:** ○ Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward ○ Recall and use addition and subtraction facts to 20 fluently ○ derive and use related facts up to 100 ○ Add three one-digit numbers ○ **Estimate answers to calculations and use estimation to check whether answers are reasonable**	**Mental calculation:** ☐ Recall and use number bonds for multiples of 5 to 100 ☐ Round numbers to the nearest 10 ☐ Add and subtract 2 digit numbers mentally ☐ Represent and use number bonds and related addition and subtraction facts within 100
Number and Place Value ☐ **read and write numbers in numerals up to 100** ☐ **demonstrate an understanding of place value (tens and ones) using a place value chart and *** ☐ Find 1 more or 1 less of a given number up to 100. ☐ Find 2 digit numbers on a number line (marked, unmarked, beaded..etc). ☐ Read and write numbers in words to at least twenty ☐ Recognise odd and even numbers to 100	**Number and Place Value** ☐ **Partition two-digit numbers into different combinations of tens and ones *** ☐ identify, represent and estimate numbers using different representations, including the number line ☐ compare and order numbers from 0 up to 100; use < > and = signs ☐ read and write numbers to at least 100 in numerals and in words ☐ use place value and number facts to solve problems.	**Number and Place Value** ☐ I can count on or back in ones or tens from any number up to 100 and even further ☐ I can read, write and partition 3-digit numbers to 1000. ☐ Begin to understand the connection between the 10 x table and place value (x and ÷ 1 and 2 digit numbers by 10).
Addition and Subtraction ☐ **Add numbers using concrete apparatus, pictorial representations, and mentally, including:) TO + O, TO and a tens number** ☐ **Subtract numbers using concrete apparatus, pictorial representations, and mentally, including: TO - O, TO number - tens** ☐ **Use counting strategies to solve problems** ☐ Add three 1-digit numbers	**Addition and Subtraction** ☐ **Add 2 two-digit numbers within 100 (e.g. 48+35) and can demonstrate method using concrete apparatus or pictorial representations** ☐ Show that + of two numbers can be done in any order (commutative) and – cannot ☐ **Subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. 74-33)** ☐ **Recognise the inverse relationship between +/- and use this to check calculations and to work out missing number problems (e.g. ?-14= 28)**	**Addition and Subtraction & Algebra** ☐ **Reason about addition (e.g. sum of three odd numbers will always be odd)** ☐ **Recognise relationship between addition and subtraction** ☐ **Work out mental calculations where regrouping is required (e.g. 52-27;91-73)** ☐ **Solve more complex missing number problems (e.g. 14+?-3=17; 14 +?=15+27).** ☐ **Solve two step or more linked word problems**
Multiplication and Division ☐ Use the multiplication (×), division (÷) and equals (=) signs ☐ Understand multiplication as repeated addition ☐ Understand division as: sharing, grouping and skip counting. ☐ **Use counting strategies to solve x and ÷ problems**	**Multiplication and Division** ☐ **Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables to solve simple problems** ☐ **understand that multiplication of two numbers can be done in any order (commutative) and division cannot.**	**Multiplication and Division** ☐ Recognise and use the inverse relationship between multiplication and division and use this to check calculations and missing number problems. ☐ **Determine remainders given known facts** ☐ **Solve word problems involving more than one step** ☐ **Rewrite addition statements as simplified multiplication statements**
Fractions ☐ Begin to recognise half and quarter in practical contexts. ☐ **Recall halves of numbers to 20**	**Fractions** ☐ **Identify 1/3, ¼, ½, 2/4, and 3/4 and know all parts must be equal parts of the whole** ☐ Begin to recognise simple equivalent fractions, such as: 2/4 and ½.	**Fractions** ☐ **Find and compare fractions of amounts (e.g. ¼ of £20 =35 and ½ of £8 =£4 so ¼ of 320 is greater than 1/2 of £8)**
Measurement ☐ Know the number of minutes in an hour and the number of hours in a day ☐ Tell the time to quarter past/to the hour and draw the hands on a clock face to show these times ☐ Recognise and use symbols for pounds (£) and pence (p) ☐ Find different combinations of coins that equal the same amounts of money	**Measurement** ☐ Choose and use standard units to estimate and measure length/height(m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit. ☐ **Read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given** ☐ **Use different coins to make the same amount** ☐ **Read the time on the clock to the nearest 15 minutes**	**Measurement** ☐ Solve one and two step measure problems. ☐ Compare and order measures and record using <,> and = ☐ **Read scales in divisions of ones, twos, fives and tens in practical situations where not all numbers on the scale are given.** ☐ **Read the time on the clock to the nearest 5 minutes**
Geometry: Shapes, Position and Direction ☐ **Recognise and name triangles, rectangles, squares, circles*** ☐ **Recognise and name cuboids, cubes, pyramids and spheres*** ☐ Order and arrange combinations of mathematical objects in patterns. ☐ Describe movement in a straight line.	**Geometry: Shapes, Position and Direction** ☐ **Describe the properties of 2D shapes (sides, vertices and symmetry)** ☐ **Describe the properties of 3D shapes (edges, vertices and faces and shapes of faces)** ☐ Describe position, direction and movement as: straight lines, rotation and in terms of right angles for 1/4, 1/2 and 3/4 turns (clockwise/anti).	**Geometry: Shapes, Position and Direction** ☐ **Describe similarities and differences of shape properties (e.g. finds 2 different 2D shapes that only have one line of symmetry; that a cube and a cuboid have the same number of vertices, faces and edges but can describe what is different about them)**
Statistics ☐ ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity	**Statistics** ☐ interpret and construct simple pictograms, tally charts, block diagrams and simple tables ☐ ask and answer questions about totalling and comparing categorical data	**Statistics** ☐ Sort and compare numbers, shapes and objects to a given criteria and their own criteria on to sorting diagrams. ☐ solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?']

Name:

CRAYLANDS MATHS ASSESSMENT

* using concrete objects, pictorial representation

KPI Statements

Year 3: working towards POS (Emerging: SIMS 16-17)	Year 3: POS (Expected: SIMS 18-19)	Year 3: working at greater depth- (Exceeding: SIMS 20-21)
Mental calculation: ○ Count on or back in tens from any number up to 1000 ○ Round 2/3 digit numbers to the nearest ten. ○ Recall and use addition and subtraction facts for 100 (multiples of 5 and 10) ○ Derive and use addition and subtraction facts for 100 ○ Begin to count in 50s and 100s ○ Begin to multiply and divide by 3	**Mental calculation:** ○ Count from 0 in multiples of 4, 8, 50 and 100 ○ find 10 or 100 more or less than a given number. ○ Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables ○ Count up and down in tenths ○ Add and subtract numbers mentally, including: -a three-digit number and ones -a three-digit number and tens -a three-digit number and hundreds	**Mental calculation:** ○ Derive and use addition and subtraction facts for multiples of 100 up to 1000, then 10 000 ○ Derive and use doubles of all numbers to 100 and the corresponding halves ○ Derive and use doubles of all multiples of 50 to 500 ○ Count on and back in ½, ¼ and 1/3
Number and Place Value ☐ Read all 3 digit numbers and write most of these in numerals. ☐ Read and write the Roman numerals from I to XII ☐ Identify the value of each digit to one decimal place ☐ Investigate a general statement about familiar numbers by finding example to satisfy it i.e. odd and even	**Number and Place Value** ☐ Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) ☐ Compare and order numbers up to 1000 ☐ Identify, represent and estimate numbers using different representations ☐ Read and write numbers up to 1000 in numerals and in words ☐ Solve number problems and practical problems involving these ideas.	**Number and Place Value** ☐ Recognise negative numbers and can position them on a number line. ☐ Read and write numbers to 10,000 ☐ Partition numbers in different ways 145 =100+40 +5 and 130+15 ☐ Find the effect of multiplying or ÷ a one or two digit number by 10 or 100 ☐ Round numbers to at least 1000 to the nearest 10 or 100
Addition and Subtraction ☐ Add and subtract 2/3 digit numbers using: number lines (counting on/ back), partitioning method and/ or expanded methods. ☐ Describe and extend growing patterns practically –add 2 green tiles each time	**Addition and Subtraction** ☐ Add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction ☐ Estimate the answer to a calculation and use inverse operations to check answers ☐ Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	**Addition and Subtraction** ☐ Solve 2/3 digit addition and subtraction problems involving missing numbers ☐ Describe and extend simple number sequences, starting from any one, two or three digit number. Which part repeats? Predict what comes next?
Multiplication and Division ☐ Understand division is the inverse of multiplication and use to check calculations. ☐ Continue to show that multiplication of two numbers can be done in any order (commutative) and division cannot. ☐ Solve TO X O problems using mental partitioning methods and the grid method.* ☐ Solve TO divided by O problems using skip counting and chunking on a number line.*	**Multiplication and Division** ☐ Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ☐ Solve problems, including missing number problems, involving multiplication and division of whole numbers and correspondence problems in which n objects are connected to m objects.	**Multiplication and Division** ☐ Solve x/ ÷ problems using formal written methods- (from year 4) ☐ Use simple function machines i.e. an input and/or an output within their number knowledge so they can determine the rule e.g. (x 5) Can you put into words what is happening here? Predict what would happen if we input these numbers.
Fractions ☐ Recognise and use fractions as numbers: unit fractions (one part of a whole) and non-unit fractions (several parts of a whole) with small denominators ☐ Recognise and show, using diagrams, equivalent fractions with small denominators	**Fractions** ☐ Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ☐ Recognise, find and write fractions of a discrete set of objects unit fractions and non-unit fractions with small denominators. ☐ Recognise and show, using diagrams, equivalent fractions with small denominators. ☐ Add and subtract fractions with the same denominator within one whole ☐ Compare and order unit fractions, and fractions with the same denominators ☐ Solve problems that involve all of the above	**Fractions** ☐ Compare and order numbers with two decimal places in the context of money or measures ☐ Round decimal fractions up to 2 places to the nearest whole number/unit of measure. ☐ I can compare and order numbers up to 100,000 ☐ Solve two step fraction problems.
Measurement ☐ Know the number of seconds in a minute and the number of days in each month, year and leap year ☐ Compare durations of events, for example to calculate the time taken by particular events or tasks ☐ Continue to estimate and measure temperature to the nearest degree using thermometers	**Measurement** ☐ Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) ☐ Add and subtract amounts of money to give change, using both £ and p ☐ Tell and write the time from an analogue clock, 12 hour and 24 hour clock ☐ Tell and write the time on an analogue clock that uses Roman numerals from I to XII. ☐ Estimate and read time to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock.	**Measurement** ☐ Measure the perimeter of simple 2-D shapes (from year 4) ☐ Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24- hour clocks (from year 4 and 5) ☐ Use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (from year 4).
Geometry: Shapes, Position and Direction ☐ Draw 2-D shapes and make 3-D shapes using modelling materials ☐ Recognise and name common 2-D and 3-D shapes and describe their properties	**Geometry: Shapes, Position and Direction** ☐ recognise 3-D shapes in different orientations and describe them ☐ Recognise that angles are a property of shape or a description of a turn ☐ Identify right angles and link to ¼, ½, 3/4 turns; identify whether angles are greater than or less than a right angle ☐ Identify horizontal and vertical lines	**Geometry: Shapes, Position and Direction** ☐ Identify pairs of perpendicular and parallel lines (from year 4 and 5) ☐ Describe positions on a grid labelled with letters and numbers ☐ Plot specified points and complete shapes or pictures
Statistics ☐ Interpret and present data using bar charts, pictograms and tables	**Statistics** ☐ Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables. ☐ Interpret and present data using bar charts, pictograms and tables.	**Statistics** ☐ Sort and compare numbers, shapes and objects on to sorting diagrams and interpret the results

Name:

CRAYLANDS MATHS ASSESSMENT

* using concrete objects, pictorial representation

KPI Statements

Year 4: Working Towards(Emerging SIMS 22-23)	Year 4: POS (Expected: SIMS 24-25)	Year 4: working at greater depth (Exc.: SIMS 26-27)
Mental calculation: ○ Count on or back in tens and hundreds from any number up to 1000 ○ Derive and use doubles of all numbers to 100 (extend to 200) and the corresponding halves ○ Derive and use doubles of all multiples of 50 to 1000 ○ Add TO + TO mentally ○ Subtract TO from TO mentally ○ Recall 6x, 7x, 9x table facts in random order. ○ Derive division facts for the 6x, 7x, 9x tables. ○ Begin to round numbers to the nearest 100	**Mental calculation:** ○ Count in multiples of 6, 7, 9, 25 and 1000 ○ Recall multiplication and division facts for multiplication tables up to 12 × 12 ○ Find 1000 more or less than a given number ○ Count backwards through zero to include negative numbers ○ Round any number to the nearest 10, 100 or 1000 ○ Round decimals with one decimal place to the nearest whole number. ○ Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	**Mental calculation:** ○ Derive and use addition and subtraction facts for multiples of 100 up to 1000, then 10 000 ○ Count on or back in tens and hundreds from any number up to 10 000 ○ Double numbers with up to two decimal places. ○ Half numbers with up to two decimal places. ○ Multiply or divide a 1 or 2 digit number by 10 or 100 ○ Use partitioning to double or halve numbers, including decimals to one and two decimal places
Number and Place Value ☐ Investigate a general statement about familiar numbers by finding example to satisfy it i.e. odd and even ☐ Recognise negative numbers in context (e.g. on a thermometer)	**Number and Place Value** ☐ Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones) *extend to 5 digit*. ☐ Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value ☐ Order and compare numbers beyond 1000 ☐ Identify, represent and estimate numbers using different representations ☐ Solve number and practical problems that involve all of the above and with increasingly large positive numbers	**Number and Place Value** ☐ Recognise negative numbers and can position them on a number line. ☐ Understand place value of numbers up to 100,000 ☐ Partition numbers in different ways 145 =100+40 +5 and 130+15 ☐ Round numbers to 10 000 to the nearest 10 or 100
Addition and Subtraction ☐ Solve 4 digit addition and subtraction problems involving missing numbers ☐ Use and apply number bonds and related subtraction facts to calculations, including those with fractions and decimals	**Addition and Subtraction** ☐ Add and subtract numbers with up to 4 digits, using formal written methods of column addition and subtraction where appropriate. ☐ Estimate the answer to a calculation and use inverse operations to check answers ☐ Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	**Addition and Subtraction** ☐ Describe and extend simple number sequences, starting from any 2,3 or 4 digit number. Which part repeats? Predict what comes next? ☐ Use function machines with an input and /or output and a rule that combines two operations e.g.(x 2+3)
Multiplication and Division ☐ Solve HTO X O problems using mental methods and the grid method, progressing to formal written method, where appropriate to use them. ☐ Solve HTO problems divided by O problems using chunking on a number line, progressing to formal written method, where it is appropriate to use them. ☐ Recognise and use factor pairs and commutativity in mental calculations.	**Multiplication and Division** ☐ Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers ☐ Multiply two-digit and three-digit numbers by a one-digit number using formal written layout ☐ Solve problems involving multiplying and dividing by one digit and harder correspondence problems such as n objects are connected to m objects	**Multiplication and Division** ☐ Use simple function machines i.e. an input and/or an output within their number knowledge so they can determine the rule e.g. (x 5) Can you put into words what is happening here? Predict what would happen if we input these numbers. ☐ Investigate how the Distributive Law can be used to multiply larger numbers: e.g. 6 x 18 is the same as 6x (10+8), or 6x (9+9).
Fractions ☐ Recognise and show, using diagrams, families of common equivalent fractions. ☐ Add and subtract fractions with the same denominator. ☐ Divide a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, 1/10s and 1/100s. ☐ Round decimals with one decimal place to the nearest whole number	**Fractions** ☐ Solve problems involving increasingly harder fractions, including non-unit fractions where the answer is whole. ☐ Recognise and show, using diagrams, families of common equivalent fractions. ☐ Recognise and write decimal equivalents of any number of tenths or hundredths ☐ Recognise and write decimal equivalents to ¼, ½, ¾ ☐ Compare numbers with the same number of decimal places up to two decimal places	**Fractions** ☐ Solve measure and money problems involving fractions and decimals to two decimal places ☐ Compare and order unit fractions, and fractions with the same denominators, *including on a number line*
Measurement ☐ Convert between different units of measure (e.g. kilometre to metre; hour to minute) ☐ Estimate, compare and calculate different measures, including money in pounds and pence ☐ Solve measure problems in a practical context	**Measurement** ☐ Calculate the perimeter of a rectilinear figure (including squares) in cm/m. Find the area of rectilinear shapes by counting squares ☐ Read, write and convert time between analogue and digital 12 and 24-hour clocks ☐ Solve simple measure and money problems involving fractions and decimals to two decimal places & problems involving converting units of time.	**Measurement** ☐ Order temperatures including those below 0 degrees centigrade ☐ Find the area of rectilinear shapes using facts from known multiplication tables ☐ Begin to use square centimetres (cm^2) ☐ Solve complex measure problems.
Geometry: Shapes, Position and Direction ☐ Draw 2-D shapes and make 3-D shapes using modelling materials ☐ Identify lines of symmetry in 2-D shapes presented in different orientations ☐ Describe movements between positions as translations of a given unit to the left/right and up/down	**Geometry: Shapes, Position and Direction** ☐ Compare, sort and classify geometric shapes. ☐ Identify acute and obtuse angles and compare angles up to two right angles. Complete a simple symmetric figure with respect to a specific line of symmetry ☐ Describe positions on a 2-D grid as coordinates in the first quadrant. plot points and connect to complete a polygon.	**Geometry: Shapes, Position and Direction** ☐ Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines and begin to identify intersecting lines.
Statistics ☐ Solve comparison, sum and difference problems using information presented in bar charts, pictograms, and other graphs.	**Statistics** ☐ Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts&time graphs. ☐ Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	**Statistics** ☐ Decide when to use the mode, median and range to describe a set of data.

CRAYLANDS MATHS ASSESSMENT
KPI Statements

Year 5: working towards POS (Emerging: SIMS 28-29)

Mental calculation:

- ○ Derive and use addition and subtraction facts for multiples of 100 up to 10 000
- ○ Read, write, order and compare numbers to 100 000
- ○ Round any number up to 1 00 000 to the nearest 10, 100, 1000, 10 000
- ○ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- ○ Multiply and divide numbers mentally drawing upon known facts

Number and Place Value

- ☐ Recognise the place value of each digit in a five digit number.
- ☐ Count backwards through zero to include negative numbers.
- ☐ Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
- ☐ Solve number and practical problems that involve all of the above and with increasingly large positive numbers.

Addition and Subtraction, Multiplication and Division

- ☐ Add and subtract negative numbers.
- ☐ Add and subtract decimals with up to two decimal places.
- ☐ Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.
- ☐ Estimate and use inverse operations to check answers to a calculation.
- ☐ Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.
- ☐ Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
- ☐ Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Fractions, ratio and proportion

- ☐ Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- ☐ Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.
- ☐ Add and subtract fractions with the same denominator.
- ☐ Recognise and write decimal equivalents of any number of tenths or hundredths.
- ☐ Recognise and write decimal equivalents to 1/4, 1/2, 3/4.
- ☐ Compare numbers with the same number of decimal places up to two decimal places.

Measurement

- ☐ Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- ☐ Read, write and convert time between analogue and digital 12- and 24-hour clocks.
- ☐ Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
- ☐ Solve problems that involve time intervals.

Geometry: Shapes, Position and Direction

- ☐ Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
- ☐ Identify lines of symmetry in 2-D shapes presented in different orientations.
- ☐ Complete a simple symmetric figure with respect to a specific line of symmetry.
- ☐ Describe positions on a 2-D grid as coordinates in the first quadrant
- ☐ Describe movements between positions as translations of a given unit to the left/right and up/down.
- ☐ Plot specified points and draw sides to complete a given polygon.

Statistics and Algebra

- ☐ Complete, read and interpret information in tables, including timetables
- ☐ Read and Interpret line graphs

CRAYLANDS MATHS ASSESSMENT
KPI Statements

Year 5: POS (Expected: SIMS 30-31)

Mental calculation:

- ○ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- ○ Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- ○ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- ○ Add and subtract numbers mentally with increasingly large numbers (example, $12462 - 2300 = 10\,162$)
- ○ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000

Number and Place Value

- ☐ Recognise the place value of each digit in a six and seven digit number.
- ☐ Read Roman numerals to 1000 (M) and recognise years in Roman numerals
- ☐ Write decimal numbers as fractions.
- ☐ Read, write, order and compare numbers with up to three decimal places.
- ☐ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- ☐ Round decimals with two decimal places to the nearest whole number and to one decimal place.
- ☐ **Solve number problems and practical problems that involve year 5 place value knowledge.**

Addition and Subtraction, Multiplication and Division

- ☐ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- ☐ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- ☐ Add and subtract whole numbers with more than 4 digits (column method)
- ☐ Establish whether a number up to 100 is prime and recall prime numbers up to 19.
- ☐ Know and use the vocabulary of: prime numbers, prime factors and composite (non-prime) numbers & common factors.
- ☐ Recognise and use square numbers & cube numbers, and the notation for both.
- ☐ Multiply numbers up to 4 digits by a one-digit number using a formal written method (short x)
- ☐ Solve problems involving multiplication and division including: factors and multiples, squares and cubes, scaling by simple fractions and problems involving simple rates.
- ☐ Solve complex problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.

Fractions, ratio and proportion

- ☐ Add and subtract fractions with the same denominator and multiples of the same number.
- ☐ Recognise the per cent symbol (%) relates to "number of parts per hundred", and write percentages as a fraction and as a decimal fraction.
- ☐ Compare and order fractions whose denominators are all multiples of the same number.
- ☐ Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- ☐ Read and write decimal numbers as fractions
- ☐ Read, write, order and compare numbers with up to three decimal places.
- ☐ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number
- ☐ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- ☐ Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25

Measurement

- ☐ Convert between different units of metric measure.
- ☐ Solve problems involving converting between units of time.
- ☐ Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
- ☐ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- ☐ Calculate and compare the area of squares and rectangles using standard units, and estimate the area of irregular shapes
- ☐ Estimate volume and capacity*
- ☐ Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.

Geometry: Shapes, Position and Direction

- ☐ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- ☐ Identify 3-D shapes from 2-D representations
- ☐ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- ☐ Draw given angles, and measure them in degrees ^{o}
- ☐ identify: angles at a point and one whole turn ,angles at a point on a straight line and ½ a turn, other multiples of 90^{o}
- ☐ Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- ☐ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed

Statistics and Algebra

- ☐ Solve comparison, sum and difference problems using data in a line graph.
- ☐ Compare, read and interpret information in two way tables, including timetables

CRAYLANDS MATHS ASSESSMENT

KPI Statements

Year 5: POS (Expected: SIMS 30-31)

Mental calculation:

- Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000
- Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.
- Add and subtract numbers mentally with increasingly large numbers (example, $12462 - 2300 = 10\,162$)
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000

Number and Place Value

- ☐ Recognise the place value of each digit in a six and seven digit number.
- ☐ Read Roman numerals to 1000 (M) and recognise years in Roman numerals
- ☐ Write decimal numbers as fractions.
- ☐ Read, write, order and compare numbers with up to three decimal places.
- ☐ Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- ☐ Round decimals with two decimal places to the nearest whole number and to one decimal place.
- ☐ **Solve number problems and practical problems that involve year 5 place value knowledge.**

Addition and Subtraction, Multiplication and Division

- ☐ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- ☐ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- ☐ Add and subtract whole numbers with more than 4 digits.
- ☐ Establish whether a number up to 100 is prime and recall prime numbers up to 19.
- ☐ Know and use the vocabulary of: prime numbers, prime factors and composite (non-prime) numbers & common factors.
- ☐ Recognise and use square numbers & cube numbers, and the notation for both.
- ☐ Multiply numbers up to 4 digits by a one-digit number using a formal written method (short x)
- ☐ Solve problems involving multiplication and division including: factors and multiples, squares and cubes, scaling by simple fractions and problems involving simple rates.
- ☐ Solve complex problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.

Fractions, ratio and proportion

- ☐ Add and subtract fractions with the same denominator and multiples of the same number.
- ☐ Recognise the per cent symbol (%) relates to "number of parts per hundred", and write percentages as a fraction and as a decimal fraction.
- ☐ Compare and order fractions whose denominators are all multiples of the same number.
- ☐ Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- ☐ Read and write decimal numbers as fractions
- ☐ Read, write, order and compare numbers with up to three decimal places.
- ☐ Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number
- ☐ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- ☐ Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25

Measurement

- ☐ Convert between different units of metric measure.
- ☐ Solve problems involving converting between units of time.
- ☐ Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
- ☐ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- ☐ Calculate and compare the area of squares and rectangles using standard units, and estimate the area of irregular shapes
- ☐ Estimate volume and capacity*
- ☐ Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.

Geometry: Shapes, Position and Direction

- ☐ Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- ☐ Identify 3-D shapes from 2-D representations
- ☐ Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- ☐ Draw given angles, and measure them in degrees ^{o}
- ☐ identify: angles at a point and one whole turn ,angles at a point on a straight line and ½ a turn, other multiples of 90^{o}
- ☐ Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- ☐ Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed

Statistics and Algebra

- ☐ Solve comparison, sum and difference problems using data in a line graph.
- ☐ Complete, read and interpret information in tables (including two-way), and timetables.

CRAYLANDS MATHS ASSESSMENT

KPI Statements

Year 5: working at greater depth (Exceeding: SIMS 32-33)

Mental calculation:

- Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one place, extend to two places).
- Add and subtract numbers mentally combinations of two, three and four digits.
- Use partitioning to double or halve larger numbers, including decimals to two decimal places
- Round numbers to a million

Number and Place Value

- ☐ Recognise negative numbers and can position them on a number line.
- ☐ Read and write numbers to 10,000
- ☐ Partition numbers in different ways 145 =100+40 +5 and 130+15
- ☐ Find the effect of multiplying or ÷ a one or two digit number by 10 or 100
- ☐ Round numbers to 10 000 to the nearest 10 or 100.
- ☐ Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems.

Addition and Subtraction, Multiplication and Division

- ☐ Solve complex addition and subtraction problems involving missing numbers.
- ☐ Add and subtract decimals up to three decimal places.
- ☐ Describe and extend number sequences including those with x and ÷ and those where the step is a decimal or fraction.
- ☐ Create a number pattern by multiplying or dividing by a constant to get the next term.
- ☐ Show a clear understanding of the different structures of multiplication and division and the related vocabulary and am able to apply this to solving increasingly complex problems.
- ☐ Apply knowledge of the inverse operation and the links between division and multiplication to solving problems.
- ☐ Solve problems of increasingly complexity using a range of strategies and am able to communicate my reasoning.

Fractions, ratio and proportion

- ☐ Show a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three.
- ☐ Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking.
- ☐ Apply links with division to solving increasingly complex problems.

Measurement

- ☐ Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.
- ☐ Use their understanding of the concepts related to measures to solve increasingly complex problems.
- ☐ Communicate reasoning and talk about mathematics using sophisticated mathematical language.

Geometry: Shapes, Position and Direction

- ☐ I can use straight edge and compasses to do standard constructions.
- ☐ Sort and classify shapes using a wide range of criterion using increasingly sophisticated mathematically appropriate vocabulary.
- ☐ Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking.
- ☐ Make links and connections with other areas of the curriculum and be able to generalise their understanding.
- ☐ Solve increasingly complex problems involving position and movement.
- ☐ Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.

Statistics and Algebra

- ☐ Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data. Draw conclusions and communicate them.

CRAYLANDS MATHS ASSESSMENT KPI Statements	CRAYLANDS MATHS ASSESSMENT KPI Statements **INTERIM STATEMENTS IN BOLD**
Year 6: working towards POS (Emerging: SIMS 34-35)	**Year 6: POS (Expected: SIMS 36-37)**
Mental calculation: ○ Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. ○ Use partitioning to double or halve larger numbers, including decimals to two decimal places. ○ Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one place). ○ Add and subtract numbers mentally combinations of two, three and four digits. ○ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.	**Mental calculation:** ○ Recall and use addition and subtraction facts for 1 and 10 with decimal numbers to two places. ○ **Calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation** ○ Round any whole number to a required degree of accuracy.
Number and Place Value ☐ Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. ☐ Solve number problems and practical problems that involve all of the above. ☐ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	**Number and Place Value** ☐ **Demonstrate an understanding of place value, including large numbers** (up to 10 000 000, determining the value of each digit) **and decimals** (e.g. 28.13=28+? + 0.03) ☐ Use negative numbers in context, and calculate intervals across zero. ☐ Solve number and practical problems that involve all of the above
Addition and Subtraction, Multiplication and Division ☐ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ☐ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. ☐ Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers up to 100. ☐ Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers. ☐ Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.	**Addition and Subtraction, Multiplication and Division** ☐ **Use formal methods to solve multi-step problems** ☐ Solve addition and subtraction problems in contexts, deciding which operations and methods to use and why. ☐ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication ☐ Divide numbers up to 4 digits by a two- digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ☐ Use their knowledge of the order of operations to carry out calculations involving the four operations. ☐ Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. ☐
Fractions, ratio and proportion ☐ Compare and order fractions whose denominators are all multiples of the same number. ☐ Round decimals with two decimal places to the nearest whole number and to one decimal place. ☐ Add and subtract fractions with the same denominator and denominators that are multiples of the same number. ☐ Read and write decimal numbers as fractions Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. ☐ Read, write, order and compare numbers with up to three decimal places. ☐ Solve problems involving number up to three decimal places. ☐ Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. ☐ Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25.	**Fractions, ratio and proportion** ☐ **Recognise the relationship between fractions, decimals and percentages and express them as equivalent quantities** ☐ **Calculate using fractions, decimals or percentages** (e.g. 15% of 60; 0.8 x 70, 1 ½ + ¾; 7/9 pf 108) ☐ Compare and order fractions, including fractions > 1. ☐ Generate and describe linear number sequences (with fractions) ☐ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ☐ Solve problems involving similar shapes where the scale factor is known or can be found. ☐ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
Measurement ☐ Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. ☐ Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. ☐ Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes. ☐ Solve problems involving converting between units of time. ☐ Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	**Measurement** ☐ **Calculate with measures** (e.g. convert 0.05km into m and cm) ☐ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. ☐ Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. ☐ Convert between miles and kilometres. ☐ **Substitute values into a simple formula to solve problems** (e.g. perimeter of a rectangle or area of a triangle or parallelogram) ☐ Recognise that shapes with the same areas can have different perimeters and vice versa
Geometry,: Shapes, Position and Direction ☐ Use the properties of rectangles to deduce related facts and find missing lengths and angles. ☐ Draw given angles, and measure them in degrees (°). ☐ Identify : angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 1 a turn (total 180°) other multiples of 90°.	**Geometry: Shapes, Position and Direction** ☐ Draw 2-D shapes using given dimensions and angles ☐ Recognise, describe and build simple 3-D shapes, including making nets. ☐ **Use mathematical reasoning to find missing angles (e.g. missing angle in an isosceles triangle when one is given, the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles)** ☐ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ☐ Describe positions on the full coordinate grid (all four quadrants) ☐ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
Statistics and Algebra ☐ Solve comparison, sum and difference problems using information presented in a line graph. ☐ Complete, read and interpret information in tables, including timetables. ☐ Use sequencing when working on shape, measures and pattern activities. ☐ Solve problems including missing number problems using addition, subtraction, multiplication and division facts.	**Statistics and Algebra** ☐ Interpret and construct pie charts and line graphs and use these to solve problems. ☐ Calculate and interpret the mean as an average. ☐ Use simple formulae. ☐ Generate and describe linear number sequences. ☐ Express missing number problems algebraically. ☐ Find pairs of numbers that satisfy an equation with two unknowns. ☐ Enumerate possibilities of combinations of two variables.

CRAYLANDS MATHS ASSESSMENT KPI Statements **INTERIM STATEMENTS IN BOLD**	CRAYLANDS MATHS ASSESSMENT KPI Statements
Year 6: POS (Expected: SIMS 36-37)	**Year 6: working at greater depth (Exceeding: SIMS 38-39)**
Mental calculation: ○ Recall and use addition and subtraction facts for 1 and 10 with decimal numbers to two places. ○ **Calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation** ○ Round any whole number to a required degree of accuracy.	**Mental calculation:** ○ Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value. ○ Show rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers. ○ Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems.
Number and Place Value ☐ **Demonstrate an understanding of place value, including large numbers** (eg 10 000 000) **and decimals** (e.g. 28.13=28+? + 0.03) ☐ Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above	**Number and Place Value** ☐ Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems. ☐ Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.
Addition and Subtraction, Multiplication and Division ☐ **Use formal methods to solve multi-step problems** ☐ Solve addition and subtraction problems in contexts, deciding which operations and methods to use and why. ☐ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication ☐ Divide numbers up to 4 digits by a two- digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. ☐ Use their knowledge of the order of operations to carry out calculations involving the four operations. ☐ Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. ☐	**Addition and Subtraction, Multiplication and Division** ☐ Show a wide repertoire of reliable and efficient calculation strategies, both written and mental, that I can apply when solving problems. ☐ Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning. ☐ Explain why different methods give the same result ☐ Think creatively when problem solving and am able to justify & prove. ☐ Show a clear understanding of the different structures of multiplication and division and related vocabulary and am able to apply this to solving increasingly complex problems. ☐ Apply the knowledge of the inverse operation and the links between division and multiplication to solving problems.
Fractions, ratio and proportion ☐ **Recognise the relationship between fractions, decimals and percentages and express them as equivalent quantities** ☐ **Calculate using fractions, decimals or percentages** (e.g. 15% of 60; 0.8 x 70, 1 ½ + ¾; 7/9 pf 108) ☐ Compare and order fractions, including fractions > 1. ☐ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ☐ Solve problems involving similar shapes where the scale factor is known or can be found. ☐ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	**Fractions, ratio and proportion** ☐ Apply my knowledge of fractions to problems involving measures and shapes. ☐ Use my knowledge of decimals in problem involving measure to work with increased accuracy. ☐ Demonstrate a very good understanding of the connections between fractions decimals and percentages and ratio and proportion and am able to use my knowledge to translate between the three. ☐ Apply my knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain my reasoning and thinking. ☐ Apply my knowledge of ratio and proportion to problems of increasing complexity and to explain their reasoning and thinking.
Measurement ☐ **Calculate with measures** (e.g. convert 0.05km into m and cm) ☐ Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. ☐ Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. ☐ Convert between miles and kilometres. ☐ **Substitute values into a simple formula to solve problems** (e.g. perimeter of a rectangle or area of a triangle or parallelogram) ☐ Recognise that shapes with the same areas can have different perimeters and vice versa	**Measurement** ☐ Apply knowledge of other areas of the curriculum to my understanding of problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals. ☐ Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures. ☐ Use my understanding of the concepts related to measures to solve increasingly complex problems. ☐ Communicate reasoning and talk about mathematics using sophisticated mathematical language. ☐ Apply knowledge of measures to other areas of the curriculum such as Science.
Geometry: Shapes, Position and Direction ☐ Draw 2-D shapes using given dimensions and angles ☐ Recognise, describe and build simple 3-D shapes, including making nets. ☐ **Use mathematical reasoning to find missing angles (e.g. missing angle in an isosceles triangle when one is given, the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles)** ☐ Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ☐ Describe positions on the full coordinate grid (all four quadrants) ☐ Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	**Geometry: Shapes, Position and Direction** ☐ Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking. ☐ Solve increasingly complex problems involving position and movement. ☐ Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.
Statistics and Algebra ☐ Interpret and construct pie charts and line graphs and use these to solve problems. ☐ Calculate and interpret the mean as an average. ☐ Use simple formulae. ☐ Generate and describe linear number sequences. ☐ Express missing number problems algebraically. ☐ Find pairs of numbers that satisfy an equation with two unknowns. ☐ Enumerate possibilities of combinations of two variables. ☐	**Statistics and Algebra** ☐ Solve comparison, sum and difference problems using information presented in a line graph. ☐ Complete, read and interpret information in tables, including timetables. ☐ Use algebraic representation to illustrate relationships. ☐ Apply understanding of equivalence in calculation to solve problems with unknowns and more than one possibility. ☐ Use algebra to prove relationships and patterns. ☐ Explain the meaning of the mathematical notation.