RISING STARS ASSESSMENT

Progression Frameworks

FOR

MATHEMATICS

YEAR 5

Developed in Association with CORNWALL LEARNING

RISING STARS ASSESSMENT

Progression Frameworks

Introduction

The Progression Framework for mathematics is organised by domain in the Programme of Study.

The content of each domain is further broken down into strands. These are:

- Number (which is split into the following three sub-domains):
    - ✦ Number and place value
    - ✦ Calculations and fractions
    - ✦ Decimals and percentages
- Measurement
- Geometry – shape and position
- Statistics
- Ratio and proportion (Year 6 only)
- Algebra (Year 6 only).

See the separate document 'About the Progression Framework for mathematics' for more detailed information.

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Rising Stars Progression Framework for mathematics, Year 5

Domain: Number

Strand	Sub-strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
1) Number and place value	a) Count	**5.1.a.1 Count forwards and backwards with positive and negative whole numbers, including through zero** (^)	Y	The pupil can continue the sequence –1, 0, 1 …	The pupil can continue the sequence –3, –2, –1 …	The pupil can solve problems such as 'Does the sequence –11, –6, –1 … pass through 91?'
		5.1.a.2 Count forwards or backwards in steps of powers of 10 for any given number to 1 000 000	N	The pupil can count backwards from 34,875 in steps of 1000.	The pupil can count backwards from 962,471 in steps of 100,000, 10,000, 1000, 100 and 10.	The pupil can reduce any six-digit number to zero by subtracting the appropriate number of each of the appropriate powers of 10.
		5.1.a.3 Continue to count in any multiples of 2 to 10, 25 and 50 (+)	N	The pupil can count up in 6s and 9s using their knowledge of counting up in 3s, and in 8s using their knowledge of counting up in 2s and 4s.	The pupil can decide whether a number is a multiple of any number by counting up in multiples of that number.	The pupil can identify whether numbers are in more than one of the sequences with which they are familiar, developing strategies for deciding.
	b) Represent numbers	**5.1.b.1 Read and write numbers to at least 1 000 000 and determine the value of each digit** (^)	Y	The pupil can read and write numbers to 1,000,000 that are multiples of 100.	The pupil can form a number with up to six digit cards and write it in words.	The pupil can write the number of megabytes on a memory stick in words and numerals.

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1) Number and place value	b) Represent numbers	5.1.b.2 Read Roman numerals to 1000 (M) and recognise years written in Roman numerals	N	The pupil can interpret the numbers from 1 to 20 using Roman numerals, and interpret the year 1900 written using Roman numerals.	The pupil can interpret the date written using Roman numerals and identify the year a film was made.	The pupil can explain why calculation with large numbers is difficult with Roman numerals.
		5.1.b.3 Interpret negative numbers in context (^)	Y	The pupil can answer questions such as 'Which is colder -5^0C or 10^0C?'	The pupil can answer questions such as 'Which is colder -2^0C or -10^0C?'	The pupil can solve problems such as identifying the biggest change in temperature between day and night on the planets in the solar system.
	c) Order and compare	**5.1.c.1 Order and compare numbers to at least 1 000 000** (^)	Y	The pupil can choose the larger number out of 30,000 and 300,000.	The pupil can place the correct sign (=, < and >) in statements such as between 343,434 and 344,344.	The pupil can solve problems involving timelines from the origins of humankind.
	d) Solve number problems	5.1.d.1 Solve number problems and practical problems with number and place value from the Year 5 curriculum (*)	N	The pupil can solve problems such as 'What is the term-to-term rule for the sequence 5, 9, 13 … and write down the next two terms?'	The pupil can solve problems such as 'What is the term-to-term rule for the sequence 14.5, 13, 11.5 … and write down the next two terms?'	The pupil can solve problems such as 'What sequence has the third term 0.3 and the seventh term –1.3?'
	e) Round numbers	5.1.e.1 Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	N	The pupil can round 7678 to the nearest 100.	The pupil can round 306,812 to the nearest 10,000.	The pupil can identify the largest multiple of 9 that rounds to 250,000 to the nearest 100.

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2) Calculation	a) Understand calculation	5.2.a.1 Continue to use the distributive law to partition numbers when multiplying them (+)	N	The pupil can use jottings to explain how they work out 11 x 3 by partitioning.	The pupil can use jottings to explain how to multiply 214 by 9 using partitioning.	The pupil can explain how they can use partitioning to work out 452 x 12.
		5.2.a.2 Develop their understanding of the meaning of the equals sign (*)	N	The pupil can interpret instances of the equals sign such as 4 + 8 = 10 + 2 and 4 + ? = 13.	The pupil can deal with a variety of instances of the equals sign including 3 + ? = 12; 3 + 12 = ? – 4 and ? + ? + 8 = ? + 11.	The pupil can interpret the equals sign as indicating that the expressions on each side are equivalent, whether they involve numbers or are missing number problems.
		5.2.a.3 Establish whether a number up to 100 is prime (^)	N	The pupil can test whether 19 is prime by trying to divide it by numbers less than 19.	The pupil can test whether 43 is prime by checking its divisibility by numbers smaller than half 43.	The pupil can test whether 67 is prime by testing its divisibility by the prime numbers smaller than the square root of 67.
		5.2.a.4 Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	N	The pupil can explain that a number such as 11 only appears in the multiplication table square in the first column and first row because only 1 and itself 'go into it'.	The pupil can explain that a prime number such as 11 has only two factors and that a composite number such as 12 has prime factors that are 2 and 3.	The pupil can solve problems such as 'Which number up to 100 has the most factors?'

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2) Calculation	b) Calculate mentally	**5.2.b.1 Add and subtract numbers mentally with increasingly large numbers**	Y	The pupil can work out mentally 15,650 – 450 = 15,200.	The pupil can work out mentally 23,712 – 1610 = 22,102.	The pupil can solve problems mentally such as 45,762 + ? = 105,761.
		5.2.b.2 Continue to develop knowledge of addition and subtraction facts and to derive related facts (+)	N	The pupil can write several calculations derived from 15 + 60 = 75.	The pupil can write several calculations derived from 15 + 60 = 75.	The pupil can write a variety of calculations derived from 15 + 63 = 78 and generalise to describe further calculations.
		5.2.b.3 Multiply and divide numbers mentally drawing upon known facts	N	The pupil can see that there is more than one strategy to complete a mental calculation and can describe them.	The pupil can select from several strategies to calculate 25 x 80 x 2.5 (= 5000).	The pupil can solve problems such as 'Use the numbers 6, 3, 7, 9, 25 and 50 once each, and use any of the four operations to make the target number of 573'.
		5.2.b.4 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	N	The pupil can work out 2.1 x 10 = 21 and 56 ÷ 10 = 5.6.	The pupil can work out 2.3 x 1000 = 2300 and 98 ÷ 1000 = 0.098.	The pupil can calculate 0.012 x 600 = 7.2.

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2) Calculation	c) Solve calculation problems	5.2.c.1 Solve addition and subtraction multi-step problems in familiar contexts, deciding which operations and methods to use and why (*)	N	The pupil can solve problems such as 'Dan has £5. He spends £1.80 on a magazine. He needs to keep £1.40 for the bus fare home. Can he afford a sandwich costing £1.90?'	The pupil can solve problems such as 'It is 560 km from Penzance to Manchester and Ali has completed 218 km of the journey. How far must he now travel until he is 100 km from Manchester?', choosing appropriate methods for the calculations.	The pupil can make up problems involving several steps and prompting different calculation strategies such as 'It is 560 km from Penzance to Manchester. Ali drives 315 km and notes that he is 112 km from Birmingham. How far is it from Birmingham to Manchester?' .
		5.2.c.2 Solve problems involving addition, subtraction, multiplication and divison, and a combination of these (^)	N	The pupil can solve problems such as 'Sam buys two bottles of water at £1.20 each and pays with a £5 note. What change does he get?'	The pupil can solve problems such as 'Sam buys seven bottles of water and gets 20p change when he pays with a £10 note. How much was each bottle?'	The pupil can make up problems involving several steps and prompting different calculation strategies such as 'Use the numbers 5, 1, 6, 7, 25 and 75 once each and any combination of the four operations to make the number 612'.
		5.2.c.3 Solve calculation problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Y	The pupil can solve problems such as 'I am thinking of a two-digit number. It is a square number. It is a multiple of 12. What number is it?'	The pupil can solve problems such as 'I am thinking of a two-digit number. The difference between its digits is a cube number and the tens digit is a square number. It is a multiple of 13. What is the number?'	The pupil can make up problems such as 'I am thinking of a two-digit number. The difference between its digits is a cube number and the tens digit is a square number. It is a multiple of 13. What is the number?' with a unique answer.
		5.2.c.4 Solve problems involving scaling by simple fractions and problems involving simple rates (^)	Y	The pupil can solve problems such as 'One ruler costs 30p. How much do four rulers cost?'	The pupil can solve problems such as 'Two rulers cost 60p. How much do five rulers cost?'	The pupil can make up problems such as 'Helen cycles 40 km in two hours. How far would she cycle in 20 minutes at the same speed?'

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2) Calculation	d) Recall	**5.2.d.1 Identify multiples and factors, including all factor pairs of a number, and common factors of 2 numbers**	Y	The pupil can list the factors of numbers below 10 and arrange them in pairs that multiply to give 10. The pupil can also list multiples of numbers in the multiplication tables.	The pupil can identify multiples or factors of a number from a set of numbers below 50 and list the factors of 40 as 1, 40; 2, 20; 4, 10; 5, 8. The pupil recognises that 5 is a common factor of 40 and 35.	The pupil can solve problems involving factors and multiples such as 'Numbers are co-prime if they have no factors in common. Find all of the numbers below 30 that are co-prime with 36. What do you notice? Can you explain this?'
		5.2.d.2 Recall square numbers and cube numbers and the notation for them (*)	N	The pupil can list the first eight square numbers and interpret 5^2 as 5 x 5 = 25.	The pupil can identify whether a given number is a square number or cube number up to 100, interpret 6^2 as 6 x 6 = 36 and 2^3 as 2 x 2 x 2 = 8.	The pupil can sort the numbers below 200 into a Venn diagram with two sets: square numbers and cube numbers. The pupil can also interpret 3^4 as 3 x 3 x 3 x 3 = 81 and extend the idea to higher powers.
		5.2.d.3 Recall prime numbers up to 19 (^)	N	The pupil can identify the prime numbers below 10.	The pupil can correctly list the prime numbers up to 19.	The pupil can apply their knowledge of the prime numbers below 20 to quickly test numbers up to 200 to ascertain whether they are prime.

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2) Calculation	e) Use written calculation	**5.2.e.1 Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)**	Y	The pupil can calculate 8234 + 3265 and 8234 – 3265 using formal columnar methods, with some prompting.	The pupil can calculate 87,234 + 32,465 and 87,234 – 32,465 using formal columnar methods.	The pupil can calculate 87,234 + 32,465 and 87,234 – 32,465 using formal columnar methods, describing why each step in the algorithm is used.
		5.2.e.2 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	N	The pupil can calculate 3964 x 7 and 3964 x 32 using a formal written method such as the grid method.	The pupil can calculate 3964 x 7 and 3964 x 32 using a formal written method such as the grid method or long multiplication.	The pupil can calculate 3964 x 7 and 3964 x 32 using a formal written method such as long multiplication and relate the steps to the grid method.
		5.2.e.3 Divide numbers up to 4 digits by a one-digit number using formal written method of short division and interpret remainders appropriately for the context	N	The pupil can calculate 714 ÷ 6 using chunking and relating it to the formal written method of short division, with prompting and solve problems such as 'Lin wishes to buy 45 bottles of water. They are sold in packs of eight bottles. How many packs must she buy?' knowing that the answer is not exact and being unsure how to deal with the remainder.	The pupil can calculate 7194 ÷ 6 using the formal written method of short division and solve problems such as 'Lin wishes to buy 45 bottles of water. They are sold in packs of eight bottles. How many packs must she buy?' knowing to round up to obtain the correct answer for the context.	The pupil can calculate 7194 ÷ 6 using the formal written method of short division and extend it to dividing decimals involving four digits by one-digit numbers. The pupil can also solve problems that lead to the calculation 45 ÷ 8 and write versions that require the remainder to be dealt with in different ways, e.g. '45 cm of ribbon is to be cut into eight equal pieces. How long is each piece?' The remainder should be expressed as a decimal.

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2) Calculation	f) Check	5.2.f.1 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	N	The pupil can check the answer to 9172 + 123 – 3987 by rounding to 9000 + 100 – 4000 = 5100, with some prompting and check the answer to 30 – 6 = 24 by working out 24 + 6 = 30. The pupil can also check the reasonableness of the answer to a problem such as 'I have 30 sweets and eat 17. How many do I have left?' by realising that 47 is not sensible.	The pupil can check the answer to 56,713 – 3156 + 954 by rounding to 60,000 – 3000 + 1000 = 58,000 and the answer to 7194 – 667 = 6527 by working out that 6527 + 667 = 7194. The pupil can also check the reasonableness of the answer to a problem such as 'I buy a book at £6.99 and pay with a £20 note. How much change should I get?' by noticing that an answer of £3.01 is too small.	The pupil can check the answer to 56,713 + 3156 + 954 by rounding to 60,000 + 3000 + 1000 = 64,000, knowing where they are likely to have made a mistake and the answer to 7194 – 609 = 6585 by working out that 6585 + 609 = 7194. The pupil also realises that addition is better checked in other ways as addition is easier than subtraction. The pupil can check the reasonableness of the answer to a problem by referring to the context. They can then explain how they know that it must be too large or too small.
		5.2.f.2 Check answers to calculations and to multiplication and division calculations using the inverse (+)	N	The pupil can check the answer to 30 ÷ 6 = 5 by working out 5 x 6 = 30.	The pupil can check the answer to 7194 ÷ 6 = 1199 by working out that 1199 x 6 = 7194.	The pupil can check the answer to 7194 ÷ 6 = 1199 by working out that 1199 x 6 = 7194. They also realise that multiplication is better checked in other ways as mulitplication is easier than division. They can however check divisions by multiplication if necessary.

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3) Fractions, decimals and percentages	a) Understand FDP	5.3.a.1 Write mathematical statements > 1 as a mixed number (^)	N	The pupil can identify 6/5 as being greater than one and, with prompting, realise that it is one whole and one-fifth.	The pupil can write 24/5 as 4 and 4/5.	The pupil can convert freely between improper fractions and mixed numbers, knowing whether it is better to use one representation than the other.
		5.3.a.2 Continue to apply their knowledge of multiplication table facts to find equivalent fractions (+)	N	The pupil can use doubling to create a set of equivalent fractions such as 1/3, 2/6, 3/9.	The pupil can simplify 12/15 by noticing that 3 is a common factor between 12 and 15 and dividing both numerator and denominator by it to get 4/5.	The pupil can quickly calculate equivalent fractions in order to solve problems.
		5.3.a.3 Recognise and use thousandths and relate them to tenths and hundredths (^)	N	The pupil can recognise that one out of 1000 is one-thousandth with the help of manipulatives.	The pupil can write 1/1000 as 0.001 and extend their understanding of the relationship between tenths and hundredths to thousandths. They state that ten-thousandths equal one-hundredth and 100-thousandths equal one-tenth.	The pupil can relate thousandths to tenths and hundredths and extend this to ten thousandths and millionths.
		5.3.a.3 Divide one- or two-digit numbers by 1000, identifying the value of the digits in the answer as ones, tenths, hundredths and thousandths (+)	N	The pupil can calculate 4 ÷ 100 = 0.04 and, with prompting, identify the 4 in 0.04 as four-hundredths.	The pupil can calculate 23 ÷ 1000 = 0.023, identifying the 2 in 0.023 as two-hundredths and the 3 as three-thousandths.	The pupil can explain why dividing ones by one thousand results in thousandths and how this might extend into ten thousandths.
		5.3.a.4 Recognise the per cent symbol and understand that per cent relates to 'number of parts per hundred' (^)	N	The pupil can identify 6% as meaning six parts out of 100.	The pupil can relate their knowledge of hundredths to percentages. They know that 1%, one-hundredth, 0.01 and 1/100 all represent the same amount.	The pupil can readily recognise percentages as hundredths and apply this to solving problems.

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3) Fractions, decimals and percentages	b) Convert FDP	5.3.b.1 Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	N	The pupil can draw a fraction wall to show the relationship between halves, thirds, quarters and sixths, and use it to identify groups of equivalent fractions. They are able to explain, with prompting, why the fractions are equivalent.	The pupil can draw a fraction wall to show the relationship between halves, thirds, quarters, sixths and twelfths, and use it to identify groups of equivalent fractions. They are able to explain why some have several equivalent fractions and others do not have any.	The pupil can draw a fraction wall to show the relationship between any groups of fractions, selecting an appropriate length for the 'wall'. They are able to explain why some have several equivalent fractions and others do not have any.
		5.3.b.2 Recognise mixed numbers and improper fractions and convert from one form to the other (^)	N	The pupil can write 1 and 1/4 as 5/4 and, with diagrams or manipulatives, explain why this works.	The pupil can recognise that improper fractions have a numerator that is larger than the denominator and so can be written as a combination of whole numbers and proper fractions.	The pupil can identify when it is better to work with mixed numbers rather than improper fractions or vice versa, explaining their reasons for doing so.
		5.3.b.3 Relate thousandths to decimal equivalents (*) (^)	N	The pupil can interpret 3/1000 as 0.003.	The pupil can interpret 45/1000 as 0.045.	The pupil can interpret 3087/1000 as 3.087 and explain why the zero has to be in the tenths position.
		5.3.b.4 Read and write decimal numbers as fractions	Y	The pupil can interpret 0.6 as 6/10.	The pupil can interpret 0.51 as 51/100.	The pupil can interpret 0.126 as 126/1000.
		5.3.b.5 Write percentages as a fraction with denominator hundred, and as a decimal (^)	N	The pupil can write 25% as 25/100 and as 0.25 with the support of appropriate images or manipulatives.	The pupil can write 45% as 45/100 and 0.45.	The pupil can write 45% as 45/100 and 0.45 and simplify 45/100 to 9/20.

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3) Fractions, decimals and percentages	b) Convert FDP	5.3.b.6 Know percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25 (^)	Y	The pupil can write 1/2 as 0.5 and 50%; 1/4 as 0.25 and 25%; 1/5 as 0.2 and 20%.	The pupil can write 1/2 as 0.5 and 50%; 1/4 as 0.25 and 25%; 1/5 as 0.2 and 20%; 3/10 as 0.3 and 30%; 4/25 as 0.16 and 16%.	The pupil can write 1/2 as 0.5 and 50%; 1/4 as 0.25 and 25%; 1/5 as 0.2 and 20%; 3/10 as 0.3 and 30%; 4/25 as 0.16 and 16% and deduce which other fractions can be written as whole number percentages.
	c) Use FDP as numbers	**5.3.c.1 Compare and order fractions whose denominators are all multiples of the same number**	Y	The pupil can identify the smaller out of 3/8 and 1/4 with supporting diagrams.	The pupil can identify the smaller out of 2/3 and 13/18.	The pupil can identify the smaller out of 2/3 and 13/18 and write down a fraction that is between them.
		5.3.c.2 Add and subtract fractions with the same denominator and denominators that are multiples of the same number, including calculations > 1 (*)	N	The pupil can calculate 3/4 + 1/2 with appropriate supporting materials.	The pupil can calculate 3/4 + 5/12.	The pupil can make up addition and subtraction problems involving fractions with the same denominator and multiples of the same denominator and solve them.
		5.3.c.3 Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	N	The pupil can work out 5 x 1/4 = 5/4 with supporting diagrams.	The pupil can work out 5 x 3/8 = 15/8 or 1 7/8 and hence deduce that 5 x 2 3/8 = 10 + 15/8 = 11 7/8, using appropriate diagrams.	The pupil can work out 5 x 3/8 = 15/8 or 1 7/8 and hence deduce that 5 x 2 3/8 = 10 + 15/8 = 11 7/8.

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3) Fractions, decimals and percentages	c) Use FDP as numbers	5.3.c.4 Round decimals with two decimal places to the nearest whole number and to one decimal place	N	The pupil can round 3.14 to the nearest whole number (3) and to one decimal place with the support of a decimal scale.	The pupil can round 4.76 to the nearest whole number (5) and to one decimal place (4.8).	The pupil can identify a number that rounds to 6.6 to one decimal place and is the smallest number for which this is true.
		5.3.c.5 Read, write, order and compare numbers with up to three decimal places	Y	The pupil can choose the larger out of 8.6 and 8.68 and write down a number between them with the support of a decimal scale.	The pupil can choose the larger out of 2.608 and 2.86 and write down a number between them.	The pupil can choose the larger out of 2.608 and 2.86 and write down the number that is halfway between them.
		5.3.c.6 Add and subtract decimals including those with a different number of decimal places (+)	N	The pupil can calculate 3.7 + 4.8 = 8.5.	The pupil can calculate 2.87 – 0.9 = 1.97 and 3.4 – 1.76 = 1.64.	The pupil can calculate 2.87 – 0.9 = 1.97 and 3.4 – 1.76 = 1.64 and devise more problems putting these calculations in a context such as measures.
	d) Solve FDP problems	5.3.d.1 Solve a variety of problems involving fractions (+)	N	The pupil can solve problems such as 'What fraction of £1 is 20p?'	The pupil can solve problems such as 'What fraction of £3 is 20p?'	The pupil can solve problems such as 'I spent 3/5 of my money and had £1.40 left to buy lunch. How much did I have originally?'
		5.3.d.2 Solve problems involving addition and subtraction involving numbers up to three decimal places (*)	N	The pupil can solve problems such as 'I have 2 m of wood and cut off 0.6 m and then another 0.75 m. How much do I have left?', with supporting diagrams and prompts.	The pupil can solve problems such as 'I have 2 m of ribbon and use lengths of 12.7 cm, 87.5 cm, 23 cm and 47 cm. How much do I have left?'	The pupil can solve problems such as 'I have 12 m of wood split into 1.5 m lengths. I need ten 80 cm lengths, fifteen 15 cm lengths and seven 16 cm lengths. Can I cut this from my wood?'
		5.3.d.3 Solve problems which require knowing key percentage and decimal equivalents	Y	The pupil can solve problems such as 'Which is better: 25% commission or 0.15 of the sales?'	The pupil can solve problems such as 'Which is more: 20% off or 0.75 of the full amount?'	The pupil can decide which decimal and percentage equivalents are key ones and which can easily be deduced.

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Domain: Measurement

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
1) Understand units of measure	5.1.1 Continue to develop understanding of how analogue and digital clocks tell the time (+)	N	The pupil can work out time intervals by looking at an analogue clock.	The pupil can work out time intervals from both an analogue and digital clock.	The pupil can work out time intervals by selecting the most appropriate method from the alternatives available.
	5.1.2 Continue to practise converting between units of time (+)	N	The pupil can convert 2 hours to 120 minutes.	The pupil can convert 3 1/4 hours to 195 minutes.	The pupil can convert any number of hours to minutes.
	5.1.3 Develop fluency in using money expressed in £, converting to p when necessary (+)	N	The pupil can record amounts of money in £, using decimal notation when necessary.	The pupil can discuss and record amounts of money expressed in £, comparing prices.	The pupil can explain why £ and p work in a similar way to metres and centimetres and grams and kilograms.
	5.1.4 Convert between different units of metric measure	Y	The pupil can apply their knowledge of multiplying by 10, 100 and 1000 and the relationship between metric units to convert 3 kg to 3000 g and, with prompting, convert 3000 g to 3 kg by dividing by 1000.	The pupil can apply their knowledge of multiplying and dividing by 10, 100 and 1000 and the relationship between metric units to convert 3.1 kg to 3100 g and 250 cm to 2.5 m.	The pupil can convert 2.5 m to any of the less common measures such as Pico metres or Mega metres.
	5.1.5 Understand and use approximate equivalences between metric units and common imperial units	N	The pupil can use the equivalences of 2.5 cm = 1 inch or 30 cm = 12 inches to convert between centimetres and inches.	The pupil can use the equivalences of 2.5 cm = 1 inch, 2(.2) pounds = 1 kg and 1 pints = 1 litre to convert between metric and imperial units.	The pupil can use the common equivalences to deduce others for less widely used imperial units.
	5.1.6 Understand the difference between perimeter as a measure of length and area as a measure of two-dimensional space (+)	N	The pupil can assemble examples of perimeters in the classroom and outdoor environments.	The pupil can assemble examples of areas and perimeters in the classroom and outdoor environments.	The pupil can assemble examples of areas and perimeters in the classroom and outdoor environments and explain why they are different.

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2) Make measurements	5.2.1 Continue to become fluent in telling the time (+)	N	The pupil can tell when it is time to get up to go to school.	The pupil can use knowledge of time to plan their own time.	The pupil can plan ahead and assess whether they have sufficient time to complete tasks.
	5.2.2 Continue to become fluent in writing the time (+)	N	The pupil can write down the time in a variety of ways, with prompting.	The pupil can write down the time in a variety of ways.	The pupil can write down the time in a wide variety of ways.
	5.2.3 Continue to estimate and compare different measurements (+)	N	The pupil can estimate the lengths of familiar objects in the classroom environment.	The pupil can estimate the lengths of familiar objects in the classroom and outdoor environments.	The pupil can identify, in the classroom or outdoor environment, a distance equivalent to the height of a Tyrannosaurus Rex.
	5.2.4 Measure the perimeter of composite rectilinear shapes (^)	Y	The pupil can measure the perimeter of an 'L shape' drawn on a piece of paper using a ruler, with prompting.	The pupil can measure the perimeter of an 'L shape' drawn on a piece of paper.	The pupil can estimate the perimeter of an 'L shape', and check it by measuring.
	5.2.5 Estimate the area of irregular shapes and volume and capacity (^)	N	The pupil can use a square grid to estimate an irregular area using an appropriate strategy to deal with parts of squares, with prompts. They can estimate whether there is enough water left in a jug to pour themselves a glass of water.	The pupil can use a square grid to estimate an irregular area using an appropriate strategy to deal with parts of squares. They can estimate whether they have enough water in a jug to pour drinks for the pupils around one table.	The pupil can estimate an irregular area by comparing it with a known regular shape. They can put enough water in a kettle to make three cups of tea.

Rising Stars Progression Framework for mathematics, Year 5

Domain: Measurement

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
3) Solve measurement problems	5.3.1 Solve problems involving converting between units of time	N	The pupil can solve problems such as 'What date is it when you reach the hundredth day of the year?'	The pupil can solve problems such as 'What date is it when you reach the one thousandth hour of the year?'	The pupil can solve problems such as 'What date was it when you reached one million minutes old?'
	5.3.2 Become familiar with temperature measure using degrees Celsius, realising that the scale becomes negative below the freezing point of water (+)	N	The pupil can read the temperature from a room thermometer.	The pupil can read the temperature from a room thermometer and interpret it as being warmer or colder than usual.	The pupil can read the temperature from weather maps and interpret it when it goes below zero.
	5.3.3 Solve problems involving money, using the four operations (+)	N	The pupil can solve problems such as 'I buy three bananas at 59p each. How much change do I get from £5?'	The pupil can solve problems such as 'I buy three apples at 39p each and four drinks at £1.19 each. How much do I pay?'	The pupil can solve problems such as 'I buy 2 kg of carrots at £1.07 per kg and two grapefruit. I pay £4.76. How much is each grapefruit?'
	5.3.4 Solve measurement problems using all four operations and decimal notation, including scaling and conversions	N	The pupil can solve problems such as 'I need 0.6 m of ribbon and my friend needs twice as much. How much ribbon do we need altogether?'	The pupil can solve problems such as 'I need 0.6 m of ribbon and my friend needs six times as much. We buy 5 m between us. How much will be left?'	The pupil can solve problems such as 'I need 0.6 m of ribbon and my friend needs six times as much. We buy 5 m between us. How much will be left in inches?'
	5.3.5 Calculate the perimeter of composite rectilinear shapes	Y	The pupil can calculate the perimeter of an 'L shape', given the appropriate dimensions, with support.	The pupil can calculate the perimeter of an 'L shape', given the appropriate dimensions.	The pupil can write instructions for calculating the perimeter of an 'L shape', given the appropriate dimensions.
	5.3.6 Calculate and compare the area of rectangles	Y	The pupil can solve problems such as 'A rectangle has a perimeter of 20 cm. Its length and width are whole numbers. What is a possible area that it could have?'	The pupil can solve problems such as 'A rectangle has a perimeter of 20 cm. Its length and width are whole numbers. What possible areas could it have? Which is the largest area?'	The pupil can solve problems such as 'A rectangle has a perimeter of 20 cm. What is the largest possible area it could have?'

Rising Stars Progression Framework for mathematics, Year 5

Domain: Geometry

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
1) Make and visualise shapes	**5.1.1 Draw given angles, and measure them in degrees** (*) and draw shapes with sides measured to the nearest millimetre (+)	Y	The pupil can draw an angle of 60^0 and draw a line measuring 7.4 cm.	The pupil can draw an angle of 48^0 and draw a rectangle measuring 4.5 cm by 9.7 cm.	The pupil can construct a triangle with angles of 48^0, 60^0 and 72^0 and draw any rectilinear shape, with given dimensions, to the nearest millimetre.
	5.1.2 Use conventional markings for parallel lines and right angles	N	The pupil can add 'boxes' to their diagrams of rectangles to indicate the right angles.	The pupil can add arrows to their diagrams of parallelograms to show which lines are parallel, and 'boxes' to their diagrams of rectangles to indicate the right angles.	The pupil can interpret diagrams with parallel lines and right angles, deducing additional information, to solve problems.
	5.1.3 Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	N	The pupil can identify cuboids and pyramids from perspective drawings.	The pupil can identify cuboids and pyramids from isometric drawings or perspective drawings.	The pupil can identify cuboids and pyramids from isometric drawings or perspective drawings or plans and elevations.
2) Classify shapes	**5.2.1 Distinguish between regular and irregular polygons based on reasoning about equal sides and angles**	Y	The pupil can decide whether a particular polygon is regular by considering the lengths of the sides and the size of the angles, with prompts.	The pupil can sort a set of polygons into a Carroll diagram according to whether they have equal sides and whether they have equal angles. They realise that only the box where both are equal represents regular polygons.	The pupil can sort a set of polygons into a Carroll diagram according to whether they have equal sides and whether they have equal angles. They realise that only the box where both are equal represents regular polygons. They link symmetry with regular polygons and explain where regular polygons can be useful.
	5.2.2 Use the term diagonal (+)	N	The pupil can draw in the diagonals for a rectangle and describe them as such, with prompting.	The pupil can draw in the diagonals for a quadrilateral and describe them as such.	The pupil can draw in the diagonals for any polygon and describe them as such.
	5.2.3 Continue to make and classify 3-D shapes, including identifying all of the 2-D shapes that form their surface (+)	N	The pupil can identify that six squares form the surface of a cube.	The pupil can identify that six rectangles form the surface of a cuboid and two triangles and three rectangles form the surface of a triangular prism.	The pupil can list the shapes that form the surface of any 3-D shape they have met.

Rising Stars Progression Framework for mathematics, Year 5

Domain: Geometry

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
3) Solve shape problems	5.3.1 Identify angles at a point and one whole turn, angles at a point on a straight line and ½ a turn and other multiples of 90º (^)	N	The pupil can identify, in a geometric diagram, instances where angles meet at a point and sum to 360^0, with support.	The pupil can identify, in a geometric diagram and in a geometric design, instances where angles meet at a point and sum to 360^0 and instances where angles lie on a straight line and so sum to 180^0.	The pupil can identify, in a geometric diagram and in a geometric design, instances where angles meet at a point and sum to 360^0 and instances where angles lie on a straight line and so sum to 180^0. The pupil can also make some conjectures about the sizes of the angles.
	5 3.2 Estimate and compare acute, obtuse and reflex angles (^)	N	The pupil can estimate the size of an angle to within 20^0.	The pupil can estimate the size of an angle to within 5^0.	The pupil can estimate the size of an angle to within 2^0.
	5.3.3 Use the properties of rectangles to deduce related facts and find missing lengths and angles	N	The pupil can deduce that, if one side of a rectangle is 10 cm long, then the opposite side will also be 10 cm long.	The pupil can solve problems such as 'The perimeter of a rectangle is 20 cm. One side is 4 cm long. How long is the other side?'	The pupil can deduce angles and side lengths in compound shapes made up of rectangles.
4) Describe position	5.4.1 Continue to use coordinates in the first quadrant to become fluent in their use (+)	N	The pupil can solve simple problems involving reflection of shapes on the coordinate grid.	The pupil can solve problems involving reflection of shapes on the coordinate grid.	The pupil can solve problems involving reflection of shapes on the coordinate grid, including oblique lines and those that dissect the shape.
	5.4.2 Identify the points required to complete a polygon (+)	N	The pupil can plot three vertices of a square and then locate the position for the fourth vertex.	The pupil can plot some vertices of a polygon given to them and then plot the remainder to complete the polygon.	The pupil can plot some vertices of a polygon given to them and then plot the remainder to complete the polygon, including all of the possible solutions.
5) Describe movement	5.5.1 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.	N	The pupil can recognise a reflection and identify a shape reflected in lines parallel to the axes, checking by noticing that the shape has not changed its 'shape' with prompting.	The pupil can recognise a reflection and identify a shape reflected in lines parallel to the axes, checking by noticing that the shape has not changed its 'shape'.	The pupil can recognise a reflection and identify a shape reflected in lines parallel to the axes, checking by noticing that the shape has not changed its 'shape'.

Rising Stars Progression Framework for mathematics, Year 5

Domain: Statistics

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
1) Interpret data	5.1.1 Interpret line graphs	N	The pupil can answer questions such as 'How much did the baby weigh at nine months old?' by interpreting an appropriate line graph.	The pupil can answer questions such as 'How much heavier was the baby at nine months old than it was at six months old?' by interpreting an appropriate line graph.	The pupil can answer questions such as 'At what age was the baby putting on weight most quickly?' by interpreting an appropriate line graph.
	5.1.2 Interpret more complex tables, including timetables	Y	The pupil can answer questions such as 'I get to the bus stop at 8:35 a.m. and catch the first bus that arrives. How long do I have to wait if it is on time?' by interpreting an appropriate bus timetable.	The pupil can answer questions such as 'I get to the bus stop at 8:35 a.m. and catch the first bus that arrives. What time do I arrive at Penzance?' by interpreting an appropriate bus timetable.	The pupil can answer questions such as 'I need to get to Penzance by 9:45 a.m. What is the latest bus that I can catch from St Ives?' by interpreting an appropriate bus timetable.
2) Present data	5.2.1 Decide the best way to present given data (+)	N	The pupil can notice that the best representation for categorical data is different from that for numerical data.	The pupil can make decisions about the best representation for categorical data as opposed to numerical data.	The pupil can make decisions about the best representation for categorical data as opposed to numerical data, justifying these decisions.
	5.2.2 Complete tables, including timetables	Y	The pupil can complete tables, deducing what is needed from the available information, with support.	The pupil can complete tables and timetables, deducing what is needed from the available information.	The pupil can complete tables and devise timetables, deducing what is needed from the available information.
3) Solve data problems	5.3.1 Solve comparison, sum and difference problems using information presented in a line graph	N	The pupil can collect data about temperature in their classroom during the course of a school day and draw a line graph to show it. They answer questions about it such as 'What is the lowest temperature?'	The pupil can collect data about temperature in their classroom during the course of a school day and draw a line graph to show it. They answer questions about it such as 'When is it warmest? What is the lowest temperature?'	The pupil can collect data about temperature in their classroom during the course of a school day and draw a line graph to show it. They answer questions about it such as 'When is it warmest? What is the lowest temperature?', and explain why that might be so.
	5.3.2 Solve problems using information in tables, including timetables	N	The pupil can solve problems using timetables such as 'I arrive at Bodmin station at 10 a.m. When is the next train to Plymouth?'	The pupil can solve problems using timetables such as 'I need to be in Plymouth by 10 a.m. Which is the latest train from Bodmin I can catch and be there in time?'	The pupil can plan a trip using public transport to a destination of their choice.

Rising Stars Progression Framework for mathematics, Year 5

Domain: Ratio

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
	5.1.1 Multiply numbers up to 4 digits by a one- or two-digit number using a formal method, including long multiplication for two-digit numbers and divide numbers up to 4 digits by a one-digit number using formal short division, interpreting non-integer answers to division according to context LINK: Number 5.2.e.2	N	The pupil can calculate 714 ÷ 6 using chunking and relating it to the formal written method of short division, with prompting and solve problems such as 'Lin wishes to buy 45 bottles of water. They are sold in packs of eight bottles. How many packs must she buy?' knowing that the answer is not exact and being unsure how to deal with the remainder.	The pupil can calculate 7194 ÷ 6 using the formal written method of short division and solve problems such as 'Lin wishes to buy 45 bottles of water. They are sold in packs of eight bottles. How many packs must she buy?' knowing to round up to obtain the correct answer for the context.	The pupil can calculate 7194 ÷ 6 using the formal written method of short division and extend it to dividing decimals involving four digits by one-digit numbers. The pupil can also solve problems that lead to the calculation 45 ÷ 8 and write versions that require the remainder to be dealt with in different ways, e.g. '45 cm of ribbon is to be cut into eight equal pieces. How long is each piece?' The remainder should be expressed as a decimal.
	5.1.2 Recognise the per cent symbol and understand that per cent relates to 'number of parts per hundred' LINK: Number 5.3.a.3	N	The pupil can identify 6% as meaning six parts out of 100.	The pupil can relate their knowledge of hundredths to percentages. They know that 1%, one-hundredth, 0.01 and 1/100 all represent the same amount.	The pupil can readily recognise percentages as hundredths and apply this to solving problems.
	5.1.3 Use multiplication and division as inverses	N	The pupil can convert from centimetres to metres by dividing by 100 and back again by multiplying by 100.	The pupil can move between a map and real life by multiplying or dividing by the scale.	The pupil can move between a scale drawing and the real life version by multiplying and dividing by the scale factor.
	5.1.4 Solve calculation problems involving scaling by simple fractions and simple rates LINK: Number 5.2.c.2	N	The pupil can solve problems such as 'One ruler costs 30p. How much do four rulers cost?'	The pupil can solve problems such as 'Two rulers cost 60p. How much do five rulers cost?'	The pupil can make up problems such as 'Helen cycles 40 km in two hours. How far would she cycle in 20 minutes at the same speed?'

Rising Stars Progression Framework for mathematics, Year 5

Domain: Algebra

Strand	Progression statement	NAHT key performance indicator (Y/N)	What to look for guidance (Working towards expectations)	What to look for guidance (Meeting expectations)	What to look for guidance (Exceeding expectations)
1) Understand formulae	5.1.1 Express missing measure questions algebraically (+)	N	The pupil can express the problem of finding the side length of a square with perimeter 20 cm as 4 x s = 20.	The pupil can express the problem of finding the width of a rectangle with length 7 cm and perimeter 20 cm as 2w + 14 = 20.	The pupil can express the problem of finding the width of a rectangle with length 7 cm and perimeter 20 cm as 2w + 14 = 20 and explain how to work out w.
	5.1.2 Distributivity can be expressed as a(b + c) = ab + ac (+)	N	The pupil can recognise that a + b = b + a expresses the idea that addition can be done in any order (is commutative).	The pupil can recognise that a x b = b x a expresses the idea that multiplication can be done in any order (is commutative).	The pupil can recognise that a(b + c) = a x b + a x c expresses the idea that multiplication out of brackets can be done and relates it to partitioning in order to multiply multi-digit numbers together.
2) Solve algebra problems	5.2.1 Find all factor pairs of a number LINK: Number 5.2.d.2	N	The pupil can list some of the factor pairs of 24.	The pupil can list the factor pairs of 24.	The pupil can list the factor pairs of 24, realising that they are solutions to a x b = 24.
	5.2.2 Find all factor pairs of a number LINK: Number 5.2.d.2	N	The pupil can list some of the factor pairs of 24.	The pupil can list the factor pairs of 24.	The pupil can list the factor pairs of 24, realising that they are solutions to a x b = 24.
3) Describe sequences	5.3.1 Recognise and describe linear number sequences and find the term to term rule	N	The pupil can state that the sequence 2, 5, 8 … goes up in 3s.	The pupil can identify 2, 5, 8 … as a linear sequence with a rule that says + 3'.	The pupil can describe the sequence 2, 5, 8 … by the position to term rule that states 'x 3 then – 1.'

RISING STARS ASSESSMENT

Progression Frameworks

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