Big Maths

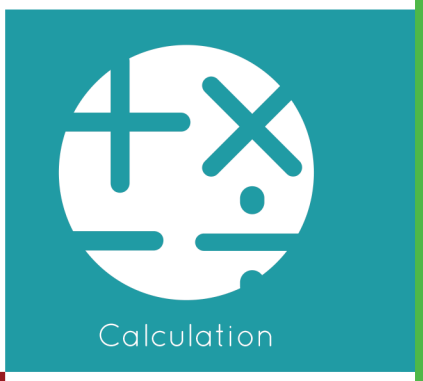
Year 5

Termly Learning Objectives


Counting

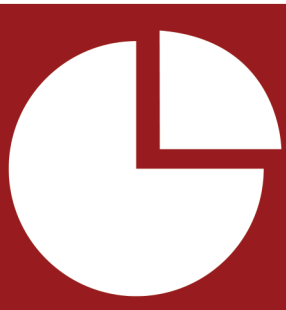
Learn Its


It's Nothing New


Calculation


Shape

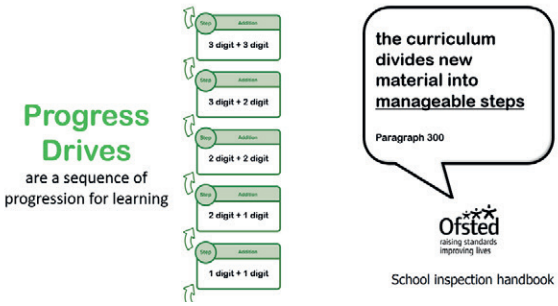

Amounts

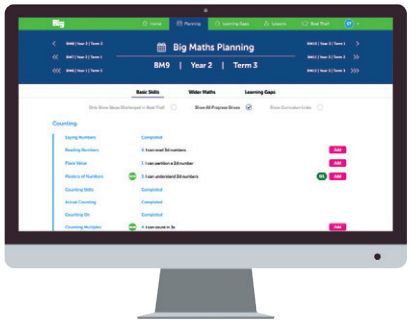

Fractions


Explaining Data

Andrell Education Ltd

Big Maths takes the broader curriculum statements from the national curriculum and breaks them down into smaller manageable steps. This results in a sequence of learning that forms the structure of the Big Maths curriculum design, which schools can then adopt. In Big Maths we call each strand/spine a Progress Drive, since it becomes a tool for the teacher to drive (as in 'to guide' or 'to steer') the learner's progress. We can see too how Ofsted now explicitly recognises this as a crucial curriculum design feature for maths.



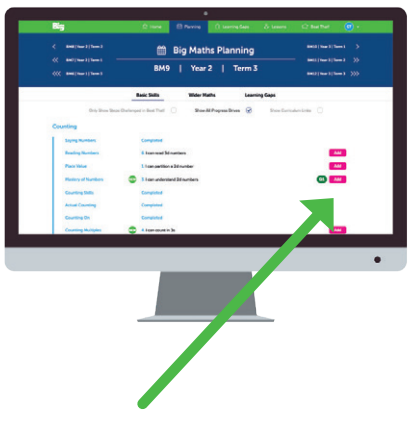


It is also effective to know *when* learners should secure each small step on the Progress Drive. This is an age-related expectation that comes from mapping the smaller steps to national curriculum year group statements. This provides the teacher with a clear and simple view of which steps need to be secured each term in order to keep the learner 'on track'. These can be seen as a list of term by term learning objective statements on the Big Maths Online website.

This can also be seen here in this 'termly learning objectives' planning document. This can be downloaded and printed out from the library section within the Big Maths Online website (new learning is denoted by being highlighted in green).

Basic Skills

Progress Drive	Step	Statement	✓
Place Value	5	I can partition a 3dp number	
Mastery of Numbers	8	I can understand 3dp numbers	
	9	I can understand 5, 6, 7, 8d numbers	
Count Along in 4 Ways	-25s	-25s	
Counting Along Scales	6	I can find the gap between 2 negative numbers	
Multiplying by 10	5	I can multiply whole numbers and decimals by 1000	
Dividing by 10	5	I can divide whole numbers and decimals by 1000	
Multiple-Factor-Prime	4	I understand prime numbers	
Addition	36	I can solve additions with 2dp	
	37	I can solve any additions with 2dp	
	38	I can solve additions with larger numbers	



Click here to immediately add this step to Big Maths Online weekly/lesson planning:

- Teacher notes are added automatically.
- Personalised notes can be added.
- Chosen resources from Big Maths Online can also be immediately added.

This planning guidance should not be used as a list that takes the teacher back to the antiquated days of simply 'covering a curriculum', but rather is a list of 'next steps' for learners to secure (that term) in their long term memory, the teacher having ensured learners have secured earlier steps on that Progress Drive. The teacher will need to construct their own plan as to how they will guide their pupils from their current starting points to the desired end points for that term. Although this requires important thinking that can only be done at the bespoke level of that teacher responding to that particular class of children, the planning process itself is quick and easy since the step is always simply located from the structure of the Big Maths curriculum, and the teacher notes and resources are there to be found at that location. All the teacher need do is click and add that step to their weekly/lesson plan, and then familiarise themselves with the delivery of that step.

A more short-hand version of this termly planning view is to use the Big Maths planning document that outlines the expected finishing position for leaners that term on each Progress Drive. This document simply shows which step the learner should be on by the end of that term if they are to be classed as 'on track'.

	Progress Drive	Steps
C	Saying Numbers	✓
	Reading Numbers	10, 11
	Place Value	4
	Mastery of Numbers	7
	Counting Skills	✓
	Actual Counting	✓
	Counting On	✓
	Counting Multiples	✓
	Counting Along in 4 Ways	-2s, -5s
	Counting Along Scales	5

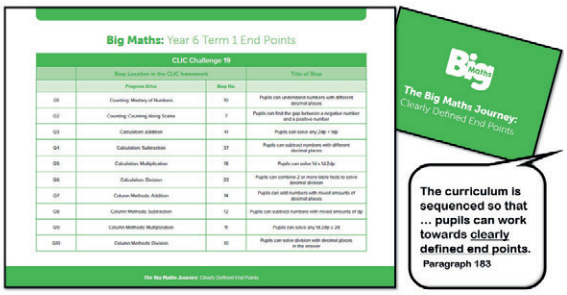
	Progress Drive	Steps
L	Learn its	✓

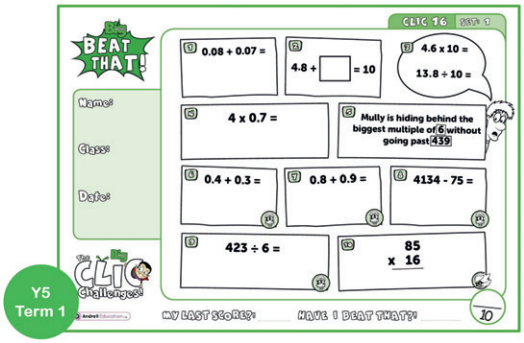
	Progress Drive	Steps
I	Swapping the Units	✓
	INN: Addition and Subtraction	✓
	Doubling & Halving	✓ ✓ ✓
	INN: Number Bonds to 10	✓
	x10 & ÷10	4 4
	INN: Multiplication	5
	Coin Multiplication	5

	Progress Drive	Steps
S	Explore & Draw	24
	2D Shapes	23
	3D Shapes	20, 21
	Position & Direction	26, 27

	Progress Drive	Steps
A	Amounts of Distance	26
	Amounts of Mass	16
	Amounts of Money	15
	Amounts of Space	20
	Amounts of Temperature	11
	Amounts of Time	27
	Amounts of Time: Telling the Time	✓
	Amounts of Turn	22, 23, 24

	Progress Drive	Steps
F	Fractions of a Whole	17
	Fractions of a Set	13
	Fractions: Counting	18
	Fractions: Learn its	9
	Fractions: It's Nothing New	7
	Fractions: Calculation	8 - 12





The Big Maths Beat That challenges are also mapped into this age-related expectation journey. Indeed, the 10 questions on each CLIC challenge represent the most essential core knowledge of the curriculum that the learner should have acquired. In effect, the 10 questions are 10 learning objectives that provide the sharpest focus of a clearly defined end point for each term. This allows the school to have perfect transparency as to which individuals, and what proportion of individuals, are 'on track' at any one time. Ensuring all pupils secure this core knowledge of the curriculum is a vital aspect of any mastery approach. Again, this idea of breaking the bigger maths journey into smaller clearly defined parts, mapped into an expected timeframe, is something that has been part of Big Maths for over a decade, but that Ofsted now recognises as an essential element of curriculum design.

Using Big Maths Online to track the performance of pupils will speed up the teacher's response to planning the next steps for learning. This can be extended into pupils completing their challenges online so that there is no printing, photocopying, sheet-management or marking; yet, the teacher can use the learning gaps feature to respond immediately in their online planning if they so wish.

Basic Skills

Progress Drive	Step	Statement	✓
Reading Numbers	7	I can read 6d numbers	
	8	I can read 5d numbers	
	9	I can read 4d numbers	
Place Value	4	I can partition a 2dp number	
Mastery of Numbers	7	I can understand 2dp numbers	
Count Along in 4 Ways	-1s	-1s	
Counting Along Scales	4	I can even count along when there are no lines	
INN: Addition and Subtraction	5	I can add hundredths	
INN: Number Bonds to 10	5	I can find the missing decimal piece	
Multiplying by 10	3	I can multiply decimals by 10	
Dividing by 10	3	I can divide decimals by 10	
INN: Multiplication	4	I can do Smile Multiplication for tenths	
Coin Multiplication	4	I know when to add 2 multiples together	
INN: Finding Multiples	4	I can find Mully using Smile Multiplication and Tables Facts	
Multiple-Factor-Prime	2	I can find factors	
Addition	32	I can solve 1dp + 1dp	
	33	I can solve any 1dp + 1dp	
Subtraction	31	I can solve 4d - 2d	
Multiplication	14	I can solve any 1d x 2d	
Division	24	I can use a Smile Multiplication fact to find a division fact	
	25	I can use a Smile Multiplication fact to find a division fact (with remainders)	
Addition - Column Methods	8	I can solve any 4d + 4d	
Subtraction - Column Methods	7	I can solve any 4d - 4d	

Basic Skills (Continued)

Progress Drive	Step	Statement	✓
Multiplication - Column Methods	4	I can solve any 2d x 2d	
Division - Column Methods	5	I can solve a 4d ÷ 1d (using any table) with no remainders in the answer	

Wider Maths

Progress Drive	Step	Statement	✓
Explore and Draw	23	I can mark parallel lines accurately	
	24	I can recognise and draw diagonal lines	
2D Shapes	23	I can sort polygons by side number and identify specific triangles and quadrilaterals	
3D Shapes	19	I can make 3D shapes	
Position and Direction	25	I can move a point horizontally and vertically	
Amounts of Distance	25	I can find the perimeter of compound shapes	
	26	I can use the total perimeter to find missing side lengths	
Amounts of Mass	16	I can convert kilograms to grams	
Amounts of Money	15	I can use decimal notation for money	
Amounts of Space	20	I can convert litres to millilitres	
Amounts of Temperature	11	I can understand and use degrees Celsius	
Amounts of Time	27	I can calculate time gaps across several hours (5 min)	
Amounts of Time: Telling the Time	18	I can recognise years written in Roman numerals	
Amounts of Turn	17	I can recognise reflex angles	
	18	I know that we need a unit of measure to describe the amount of turn... and that we use degrees!	
	19	I know my right angle Learn Its: 90° = 1 right angle, 180° = half turn, 270° = three quarter turn and 360° = whole turn	
	20	I can define an acute, obtuse and reflex angle using degrees	
	21	I can use my right angle Learn Its to find simple missing angles: 90° = 1 right angle, 180° = half turn, 270° = three quarter turn and 360° = whole turn	
Fractions of a Whole	17	I can show a variety of equivalent fractions	
Fractions of a Set	12	I can use all tables Learn Its to find fractions of amounts	
Fractions: Counting	17	I can round numbers with 2dp	

Wider Maths (Continued)

Progress Drive	Step	Statement	✓
Fractions: Learn Its	8	I know 1/5 = 0.2 2/5 = 0.4 3/5 = 0.6 4/5 = 0.8	
	9	I know 1/3 = 0.33333 recurring	
Fractions: It's Nothing New	7	I can multiply unit fractions (beyond 1)	
Fractions: Calculation	6	I can simplify fractions ready for ordering... and order them	
	7	I can simplify fractions ready for calculating... and calculate with them	
Ratio	4	I can investigate increasing shapes by a given proportion	
Diagrams and Tables	24	I can explain data from a wide variety of representations	
Bar Charts	11	I can draw a bar chart with continuous data	
Line Graphs	3	I can explain a range of simple line graphs	
Pattern Spotting	9	I can spot and extend more challenging patterns of shapes	
Algebra	9	I can find a missing number by calculating first	
	10	I can use trial and improvement to find two missing numbers	
Prove It!	4	I can Prove It! - 4	

Basic Skills

Progress Drive	Step	Statement	✓
Reading Numbers	10	I can read 9, 8, 7d numbers	
	11	I can read each digit with decimal places	
Place Value	4	I can partition a 2dp number	
Mastery of Numbers	7	I can understand 2dp numbers	
Count Along in 4 Ways	-2s, -5s	-2s -5s	
Counting Along Scales	5	I can count along any number line	
Multiplying by 10	4	I can multiply decimals by 100	
Dividing by 10	4	I can divide decimals by 100	
INN: Multiplication	5	I can do Smile Multiplication for hundredths	
Coin Multiplication	5	I know when to add 3 multiples together	
INN: Finding Multiples	5	I can find Mully using Coin Multiplication	
Multiple-Factor-Prime	3	I understand square numbers	
Addition	34	I can solve 1d.1dp + 1d.1dp	
	35	I can solve any 1d.1dp + 1d.1dp	
Subtraction	32	I can solve 3d - 3d	
	33	I can solve 3d - 3d as money	
Multiplication	15	I can solve 1d x 3d	
	16	I can show my understanding for 2d x 2d	
Division	26	I can combine a Smile Multiplication fact with a Tables Fact to solve division	
	27	I can combine a Smile Multiplication fact with a Tables Fact to solve division (with remainders)	
Addition - Column Methods	9	I can use Column Addition for several numbers	
Subtraction - Column Methods	8	I can solve any 5d - 5d	

Basic Skills (Continued)

Progress Drive	Step	Statement	✓
Multiplication - Column Methods	5	I can solve any 3d x 2d	
Division - Column Methods	6	I can solve any 2d ÷ 1d and 3d ÷ 1d with remainders	

Wider Maths

Progress Drive	Step	Statement	✓
Explore and Draw	24	I can recognise and draw diagonal lines	
2D Shapes	23	I can sort polygons by side number and identify specific triangles and quadrilaterals	
3D Shapes	20	I can recognise a 'simple' net of a cube and use it to construct a cube	
	21	I can recognise different nets of cubes	
Position and Direction	26	I can move a shape in one direction	
	27	I can move a shape in both directions	
Amounts of Distance	26	I can use the total perimeter to find missing side lengths	
Amounts of Mass	16	I can convert kilograms to grams	
Amounts of Money	15	I can use decimal notation for money	
Amounts of Space	20	I can convert litres to millilitres	
Amounts of Temperature	11	I can understand and use degrees Celsius	
Amounts of Time	27	I can calculate time gaps across several hours (5 min)	
Amounts of Turn	22	I can accurately estimate acute, obtuse and reflex angles	
	23	I can use a protractor to draw a right angle	
	24	I can use a protractor to draw a specified acute angle to the nearest 5°	
Fractions of a Whole	17	I can show a variety of equivalent fractions	
Fractions of a Set	13	I can go beyond my tables to find fractions of an amount	
Fractions: Counting	18	I can identify fractions less than 1, more than 1 or equal to 1	
Fractions: Learn Its	9	I know 1/3 = 0.33333 recurring	
Fractions: It's Nothing New	7	I can multiply unit fractions (beyond 1)	

Wider Maths (Continued)

Progress Drive	Step	Statement	✓
Fractions: Calculation	8	I can find equivalent fractions	
	9	I can find equivalent fractions ready for ordering... and order them	
	10	I can find equivalent fractions ready for calculating... and calculate with them	
	11	I can convert mixed numbers to improper fractions using all my tables Learn Its	
	12	I can convert improper fractions to mixed numbers using all my tables Learn Its	
Ratio	5	I can decrease measures by a given proportion	
	6	I can use my Coin Card to find a missing value in one step	
	7	I can use my Coin Card to find missing values with simple rates	
Diagrams and Tables	24	I can explain data from a wide variety of representations	
Bar Charts	11	I can draw a bar chart with continuous data	
Line Graphs	4	I can use coordinates to explain line graphs	
	5	I can use a line graph to explain a simple ratio	
	6	I can use a line graph to answer a range of information questions	
Pattern Spotting	10	I can record the gaps between numbers in a number sequence	
	11	I can spot a steady gap	
	12	I can spot a steady gap and use it to extend the sequence	
	13	I can spot a steady gap and use it to find missing numbers	
	14	I can spot a steady gap and use it to find 2 consecutive missing numbers	
Algebra	11	I can use my tables Learn Its to find the value of missing numbers represented by letters	
Prove It!	4	I can Prove It! - 4	

Basic Skills

Progress Drive	Step	Statement	✓
Place Value	5	I can partition a 3dp number	
Mastery of Numbers	8	I can understand 3dp numbers	
	9	I can understand 5, 6, 7, 8d numbers	
Count Along in 4 Ways	-25s	-25s	
Counting Along Scales	6	I can find the gap between 2 negative numbers	
Multiplying by 10	5	I can multiply whole numbers and decimals by 1000	
Dividing by 10	5	I can divide whole numbers and decimals by 1000	
Multiple-Factor-Prime	4	I understand prime numbers	
Addition	36	I can solve additions with 2dp	
	37	I can solve any additions with 2dp	
	38	I can solve additions with larger numbers	
Subtraction	34	I can subtract numbers with hundredths	
	35	I can subtract numbers with tenths	
	36	I can solve subtraction with large numbers	
Multiplication	16	I can show my understanding for 2d x 2d	
Division	28	I can use a coin fact to find a division fact	
	29	I can use a coin fact to find a division fact (with remainders)	
	30	I can combine 2 or more Coin Facts to solve division	
	31	I can combine 2 or more Coin Facts to solve division (with remainders)	
Addition - Column Methods	10	I can solve any 5d + 5d	
Subtraction - Column Methods	8	I can solve any 5d - 5d	
Multiplication - Column Methods	6	I can solve any 4d x 1d	
Division - Column Methods	7	I can solve any 4d ÷ 1d and interpret the context of the remainder	

Wider Maths

Progress Drive	Step	Statement	✓
Explore and Draw	24	I can recognise and draw diagonal lines	
2D Shapes	24	I can sort regular and irregular polygons by reasoning about their properties	
	25	I can find missing side lengths using shape properties	
3D Shapes	22	I can make a range of familiar 3D shapes given their net	
	23	I can match a net to a 3D shape, i.e. I know if it's the right net	
Position and Direction	28	I can reflect a shape across a vertical line, then a horizontal line	
	29	I can reflect and translate shapes	
Amounts of Distance	27	I can convert kilometres and metres in both directions and to 3dp	
	28	I know about imperial units for distance	
Amounts of Mass	17	I can convert kilograms and grams in both directions and to 3dp	
	18	I know about imperial units for mass	
Amounts of Money	16	I can use all of CLIC in the context of money	
	17	I can manage a simple budget	
Amounts of Space	21	I understand that to measure area we need to count standard sized squares and that this has special notation	
	22	I can calculate areas using CLIC	
	23	I can convert litres and millilitres in both directions and to 3dp	
	24	I know about imperial units for capacity	
	25	I understand that to measure volume we need to count standard sized cubes and that this has special notation	
	26	I can estimate volume and capacity	

Wider Maths (Continued)

Progress Drive	Step	Statement	✓
Amounts of Temperature	12	I can find temperature differences (positive numbers)	
	13	I can find temperature differences (negative numbers)	
	14	I can find temperature differences between a positive and a negative number	
Amounts of Time	28	I can calculate time gaps within an hour (1 min)	
	29	I can calculate time gaps across an hour (1 min)	
	30	I can calculate time gaps across several hours (1 min)	
	31	I can convert times and then calculate time gaps	
Amounts of Turn	25	I can use a protractor to measure a specified acute angle to the nearest 2°	
	26	I can use a protractor to draw a specified obtuse angle to the nearest 2°	
	27	I can use a protractor to measure a specified obtuse angle to the nearest 2°	
	28	I can use a protractor to draw a specified reflex angle to the nearest 2°	
	29	I can use a protractor to measure a specified reflex angle to the nearest 2°	
	30	I can measure the 4 internal angles of quadrilaterals and explore the sum	
Fractions of a Whole	17	I can show a variety of equivalent fractions	
Fractions of a Set	13	I can go beyond my tables to find fractions of an amount	
Fractions: Counting	19	I can count in thousandths	
	20	I know that counting in hundredths is counting percentages	
Fractions: Learn Its	10	I know all of my percentage Learn Its	
Fractions: It's Nothing New	8	I can use Smile Multiplication for fractions	

Wider Maths (Continued)

Progress Drive	Step	Statement	✓
Fractions: Calculation	13	I can convert fractions from/to mixed numbers ready for ordering... and order them	
	14	I can convert fractions from/to mixed numbers ready for calculating... and calculate with them	
	15	I can multiply proper fractions by whole numbers	
	16	I can multiply mixed numbers by whole numbers	
	17	I can see that percentages are proportions	
Percentages	1	I know that counting in hundredths is counting percentages!	
	2	I can see that percentages are proportions	
	3	I know all of my percentage Learn Its	
Ratio	8	I can use my Coin Card to find a missing value in two steps	
Diagrams and Tables	25	I can read, use and calculate with a wide range of tables and timetables	
Bar Charts	11	I can draw a bar chart with continuous data	
Line Graphs	6	I can use a line graph to answer a range of information questions	
Probability	1	I can describe familiar events using chance and likelihood	
	2	I can compare the likelihood of 2 familiar events	
	3	I understand that probability is about what might happen	
	4	I know when something is impossible or certain	
	5	I can see when 2 events are equally likely	
	6	I can recognise when an event has an even chance	
	7	I can show an even chance using numbers	
Pattern Spotting	15	I can predict other numbers in the sequence, away from the numbers given	
	16	I can spot patterns in sequences with decimals/fractions/ negative numbers	
	17	I can spot patterns where the gap is a fraction	

Wider Maths (Continued)

Progress Drive	Step	Statement	✓
Algebra	12	I can solve equations with brackets	
	13	I can describe algebraically how to always solve 1d x 2d	
	14	I can choose my own letter to represent an unknown number that is being multiplied	
Prove It!	5	I can Prove It! - 5	

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Version Ref: 1.1 19/12/2019