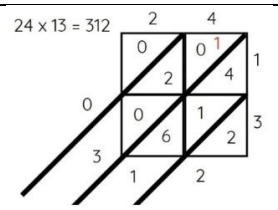
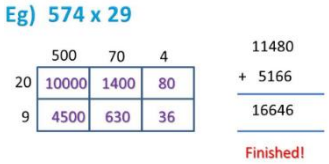
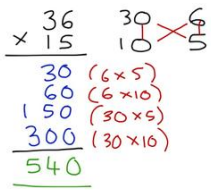
Year 7 Mathematics
Core
HT 1

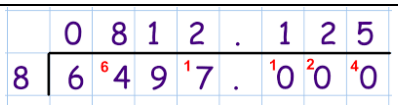
Number Skills

1.	Addition	To find the sum or total of two or more numbers.
2.	Subtraction	To find the difference between two numbers.
3.	Multiplication	Repeated addition of a number. Also called 'product'
4.	Division	The process of calculating the number of times one number is contained in another.
5.	Divisible	Can be divided by a number without a remainder.

Multiplication methods

6.	Lattice	
7.	Grid	
8.	Column	

Division Methods

9.	Short	e.g. 6497 ÷ 8 

10.	Long	e.g. 13032 ÷ 24	1 - 24 2 - 48 3 - 72 4 - 96 5 - 120 6 - 144 7 - 168 8 - 192 9 - 216 543 24 | 13032 - 120 103 - 96 72 - 72 00

Times Tables

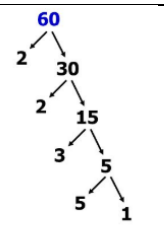
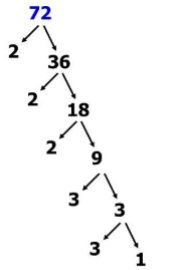
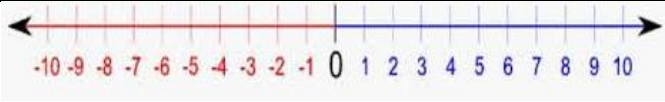
×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

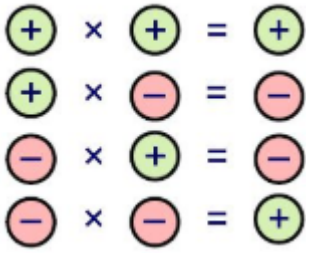
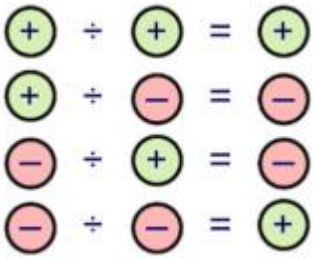
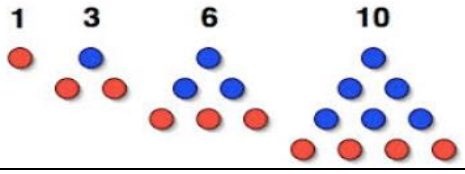
Divisibility Rules

11.	A number is divisible	
	by:	if:
	2	The last digit is divisible by 2
	3	The sum of the digits is divisible by 3
	4	The number made by the last two digits is divisible by 4
	5	The last digit is 5 or 0
	6	The number is divisible by 2 and 3
	8	The number made by the last 3 digits is divisible by 8
	9	The sum of its digits is divisible by 9
	10	The last digit is 0.

12.	Operations	Symbols and words to show how to combine numbers.			
		×	Multiply	+	Add
		÷	Divide	−	Subtract

13.	Inverse Operations	The operation used to reverse the original operation	
		+ and − are inverse	× and ÷ are inverse
		Finding the square root is the inverse of finding the square of a number.	
		Finding the cube root is the inverse of finding the cube of a number.	

14.	Order of operations	The order in which operations should be done.	B I DM AS	Brackets Indices Divide and Multiply Add and Subtract
15.	Integer	A whole number that is can be positive, negative or zero.		
16.	Decimal	A number with a decimal point in it, which can be negative or positive.		
17.	Rounding	Changing a number to a simpler, easy to use value.		
18.	Approximate	An easier figure to use close to the value.		
19.	Multiple	The result of multiplying a number by an integer.		
20.	Factor	A number that divides into another number without a remainder.		
21.	Prime number	A number with exactly two factors; 1 and itself.		
22.	Prime numbers	2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.		
23.	Product	The answer when two or more numbers are multiplied together.		
24.	Prime factor decomposition	Writing a number as a product of its prime factors.		 $60 = 2 \times 2 \times 3 \times 5$ $60 = 2^2 \times 3 \times 5$  $72 = 2 \times 2 \times 2 \times 3 \times 3$ $72 = 2^3 \times 3^2$
25.	Highest common factor	HCF	The highest number that divides exactky into two or more numbers.	e.g. the HCF of 12 and 24 is 12
26.	Lowest common multiple	LCM	The smallest positive integer that is a multiple of two or more numbers.	e.g. the LCM of 12 and 24 is 24
27.	Negative number	A number that is less than zero.		

28.	Negative number rules	When multipllying or dividing with numbers that include negative numbers to following applies:		
29.	Ascending order	A set of numbers arranged from smallest to biggest.		
30.	Descending order	A set of numbers arranged from biggest to smallest.		
31.	Square numbers	The product of a number multiplied by itself.		
32.	Cube numbers	The product of multiplying a number by itself three times		
33.	Triangular numbers	Numbers that can make a triangular dot pattern.		

Analysing and displaying data

Definitions

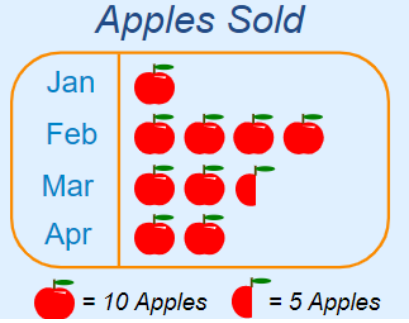
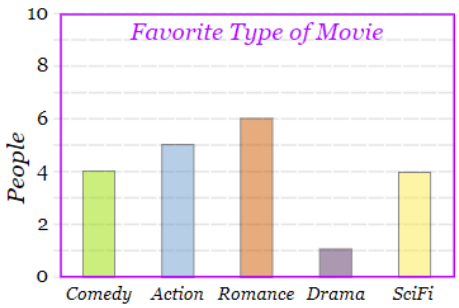
34.	Qualitative	Data decribed by words.
35.	Quantitative	Data that is in number form that can be discrete or continuous.
36.	Discrete	Data that can be counted and has a finite number of possible values.
37.	Continuous	Data that can be measured and has an infinite number of possible values within a range.

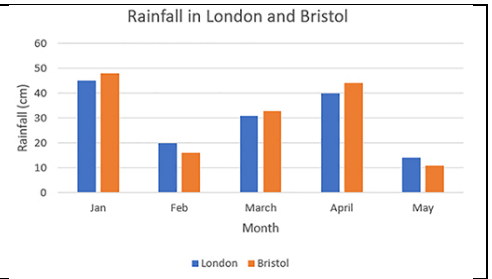
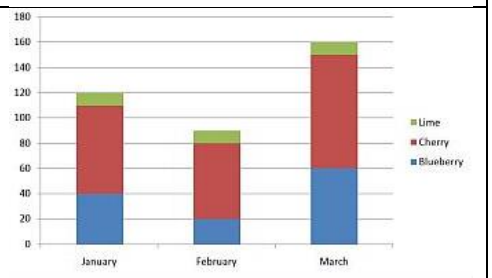
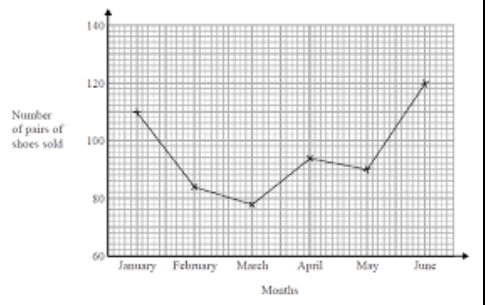
Averages and Measures of central tendency

38.	Mode	The value that occurs most often.
39.	Range	The largest value minus the smallest value.
40.	Median	The middle value when the numbers are in ascending order.
41.	Mean	Add up all the amount. Divide by how many values there are.

Averages from frequency tables

42.	Modal class	The class with the highest frequency

43.	Median	If the total frequency is n, then the median lies in the class with the $\frac{n+1}{2}$th value in it.	
44.	Mean from a frequency table Times → Add ↓↓ Divide ←	No of make-up items in handbags No of Items x / Freq f / f x x 1 / 7 / 1 x 7 = 7 2 / 2 / 2 x 2 = 4 3 / 1 / 3 x 1 = 3 4 / 4 / 4 x 4 = 16 5 / 2 / 5 x 2 = 10 16 / 40	Mean = $\frac{40}{16}$ = 2.5
45.	Estimated mean from a grouped frequency table Times → Add ↓↓ Divide ←	Class Interval / Mid-point / Frequency / Mid-point × Frequency $140 \le h < 150$ / 145 / 6 / 145 × 6 = 870 $150 \le h < 160$ / 155 / 16 / 155 × 16 = 2480 $160 \le h < 170$ / 165 / 21 / 165 × 21 = 3465 $170 \le h < 180$ / 175 / 8 / 175 × 8 = 1400 Totals / 51 / 8215	Mean = 8215 ÷ 51 =161.07843... = 161.08 (2dp)
46.	Estimate of range from grouped freqyuency table	The maxiumum possible value minus the smallest possible value.	
Displaying data			
47.	Two way table	A table that can be used to complare two discrete data sets.	What is your favorite sport to watch on television? Football / Basketball / Baseball Males: 40 / 22 / 15 Females: 12 / 16 / 45 Total: 52 / 38 / 60
48.	Pictogram	A chart that uses pictures to represent quantities. Must include a key.	
49.	Bar chart	A chart to display discrete data where the height of the bar shows the frequency.	

50.	Dual bar chart	A bar chart used to compare data sets where bars are drawn next to each other to compare heights.	
51.	Composite bar chart	A bar chart where bars are split to show the different quantities within each bar.	
52.	Times series graph	A line graph that has time plotted on the horizontal axis.	

Year 7 Mathematics
Core
HT 2

Expressions, Functions and Formulae

1.	Expression	A mathematical statement written using symbols, numbers or letters.
2.	Equation	A statement showing that two expressions are equal.
3.	Identity	An equation that is true for all values of the variables. An identity uses the symbol: ≡
4.	Formula	Shows the relationship between two or more variables
5.	Function Machine	Takes an input value, performs some operations and produces an output value.
6.	Function notation	f(x) x is the input value f(x) is the output value.
Algebraic notation		
7.	Variable	A letter used to represent a number.
	Coefficient	A number in front of a variable. Written as fractions rather than decimals.
	Term	One part of an expression/equation/formula. Can involve multiplying and dividing coefficients and variables. Separated from other terms by addition or subtraction,
	Adding Terms	3y in place of y + y + y and 3 × y
	Multiplying Terms	a^2 in place of a × a a^3 in place of a × a × a a^2b in place of a × a × b
	Dividing Terms	a/b in place of a ÷ b

8.	Simplifying Expressions	Collect 'like terms'.
9.	Expand	To expand a bracket, multiply each term in the bracket by the expression outside the bracket.
10.	Factorise	The reverse of expanding. Factorising is writing an expression as a product of terms by 'taking out' a common factor.
11.	Substitution	Replace letters with numbers.
12.	Writing Formulae	Substitute letters for words in the question.

Decimals and measures

Decimals

13.	Place Value	The value of a digit depending on its place in a number.

Millions	Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Units	•	Tenths	Hundredths	Thousandths

14.	Decimal	A number with a decimal point in it, which can be negative or positive.
15.	Decimal Place	The position of a digit to the right of a decimal point.
16.	Recurring Decimal	A decimal number that has digits that repeat forever.
17.	Rounding	Changing a number to a simpler, easy to use value.
18.	Significant Figure	The significant figures of a number are the digits that carry meaning.
19.	Error Interval	A range of values that a number could have taken before being rounded or truncated.

20.	Lower Bound	The smallest value that would round up to the estimated value
21.	Upper Bound	The smallest value that would round up to the next estimated value.
Measures		
22.	Metric System	A system of measures based on the metre for length, the kilogram for mass and the litre for capacity.
23.	Imperial System	A system of measures based on the inch, foot, yard and miles for length; the pound, ounce and stone for mass; and the pint and gallon for capacity.
24.	Length	The measurement of how long an object is.
25.	Mass	The measurement of how much matter is in an object.
26.	Capacity	The measurement of how much an object can hold.
27.	Scale	The ratio of the length in a model to the length of the real thing.
28.	Coordinates	Written in pairs. The first term is the x-coordinate (movement across). The second term is the y-coordinate (movement up or down)
29.	Perimeter	The total distance around the outside of a shape.
30.	Area	The amount of space inside a shape defined in square units.