MATHS – YEAR 7 – Unit 2

1. Tier 3 Vocabulary

Commutative	A group of quantities connected by operators gives the same result whatever the order of the quantities involved . E.g. 3 x 6 = 6 x 3
Dividend Divisor Quotient	The number that is being divided The number being divided by The number of times the divisor goes into the dividend
Estimating	To find an answer close to the actual answer
Integer	A whole number
Compound shape	A shape made up from two or more basic shapes
HCF	The **H**ighest **C**ommon **F**actor of a set of numbers is the largest factor of all the numbers in the set
LCM	The **L**owest **C**ommon **M**ultiple of a set of numbers is the smallest number that appears in all the times tables of the set of numbers

2. Key Ideas

Multiplication	Can be thought of as repeated addition. 'multiply', 'times', 'product'
Division	Splitting into equal parts or groups. The process of calculating the number of times one number is contained within another one.
Area	The amount of space inside a shape. Units include: mm^2, cm^2. m^2
Statistical measures	Data can be represented and compared by finding the mean and the range

3. Numerical Reasoning - Negative Numbers

Multiplying or dividing a negative by a positive	The product of a positive and a negative is a negative E.g. 6 x -3 = -18 -20 ÷ 5 = -4
Multiplying or dividing a negative by a negative	The product of a negative and a negative is a positive E.g. -15 x -3 = 45 -204 ÷ -3 = 68

4. Geometric Reasoning - Area

Rectangle	**Length x Width**
Triangle	**Base x Height ÷ 2**
Parallelogram	**Base x Perpendicular Height** Not the slant height

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5. History

The oldest known **multiplication** tables were used by the Babylonians about 4000 years ago. However, they used a base of 60. The oldest known tables using a base of 10 are the Chinese decimal **multiplication** table on bamboo strips dating to about 305 BC, during China's Warring States period

Some authors credit medieval Arabic mathematician Al-Samawal (1130-1180) for inventing long division. Al-Samawal was first to use tables of coefficients to write and perform calculations

6. Statistical Reasoning - Mean and Range

Mean	To find the mean of a data set, add up all of the numbers in the set, and then divide that total by the number of numbers in the set.
Range	The difference between the largest and smallest values in a data set

7. Numerical Reasoning - Multiplication Facts

2 x 1 = 2	3 x 1 = 3	4 x 1 = 4	5 x 1 = 5
2 x 2 = 4	3 x 2 = 6	4 x 2 = 8	5 x 2 = 10
2 x 3 = 6	3 x 3 = 9	4 x 3 = 12	5 x 3 = 15
2 x 4 = 8	3 x 4 = 12	4 x 4 = 16	5 x 4 = 20
2 x 5 = 10	3 x 5 = 15	4 x 5 = 20	5 x 5 = 25
2 x 6 = 12	3 x 6 = 18	4 x 6 = 24	5 x 6 = 30
2 x 7 = 14	3 x 7 = 21	4 x 7 = 28	5 x 7 = 35
2 x 8 = 16	3 x 8 = 24	4 x 8 = 32	5 x 8 = 40
2 x 9 = 18	3 x 9 = 27	4 x 9 = 36	5 x 9 = 45
2 x 10 = 20	3 x 10 = 30	4 x 10 = 40	5 x 10 = 50
2 x 11 = 22	3 x 11 = 33	4 x 11 = 44	5 x 11 = 55
2 x 12 = 24	3 x 12 = 36	4 x 12 = 48	5 x 12 = 60

6 x 1 = 6	7 x 1 = 7	8 x 1 = 8	9 x 1 = 9
6 x 2 = 12	7 x 2 = 14	8 x 2 = 16	9 x 2 = 18
6 x 3 = 18	7 x 3 = 21	8 x 3 = 24	9 x 3 = 27
6 x 4 = 24	7 x 4 = 28	8 x 4 = 32	9 x 4 = 36
6 x 5 = 30	7 x 5 = 35	8 x 5 = 40	9 x 5 = 45
6 x 6 = 36	7 x 6 = 42	8 x 6 = 48	9 x 6 = 54
6 x 7 = 42	7 x 7 = 49	8 x 7 = 56	9 x 7 = 63
6 x 8 = 48	7 x 8 = 56	8 x 8 = 64	9 x 8 = 72
6 x 9 = 54	7 x 9 = 63	8 x 9 = 72	9 x 9 = 81
6 x 10 = 60	7 x 10 = 70	8 x 10 = 80	9 x 10 = 90
6 x 11 = 66	7 x 11 = 77	8 x 11 = 88	9 x 11 = 99
6 x 12 = 72	7 x 12 = 84	8 x 12 = 96	9 x 12 = 108

10 x 1 = 10	11 x 1 = 11	12 x 1 = 12	1 x 1 = 1
10 x 2 = 20	11 x 2 = 22	12 x 2 = 24	2 x 2 = 4
10 x 3 = 30	11 x 3 = 33	12 x 3 = 36	3 x 3 = 9
10 x 4 = 40	11 x 4 = 44	12 x 4 = 48	4 x 4 = 16
10 x 5 = 50	11 x 5 = 55	12 x 5 = 60	5 x 5 = 25
10 x 6 = 60	11 x 6 = 66	12 x 6 = 72	6 x 6 = 36
10 x 7 = 70	11 x 7 = 77	12 x 7 = 84	7 x 7 = 49
10 x 8 = 80	11 x 8 = 88	12 x 8 = 96	8 x 8 = 64
10 x 9 = 90	11 x 9 = 99	12 x 9 = 108	9 x 9 = 81
10 x 10 = 100	11 x 10 = 110	12 x 10 = 120	10 x 10 = 100
10 x 11 = 110	11 x 11 = 121	12 x 11 = 132	11 x 11 = 121
10 x 12 = 120	11 x 12 = 132	12 x 12 = 144	12 x 12 = 144