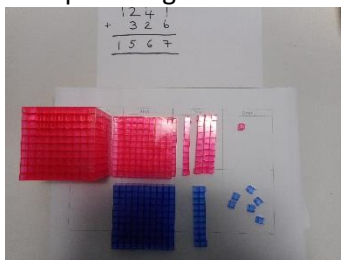
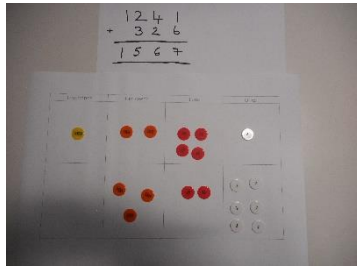
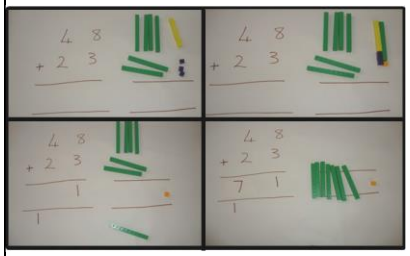
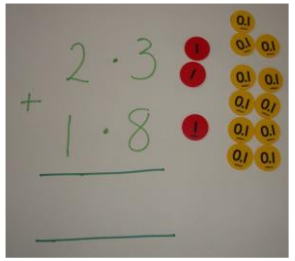
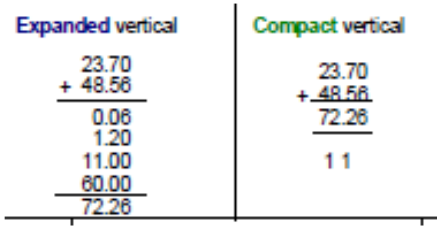
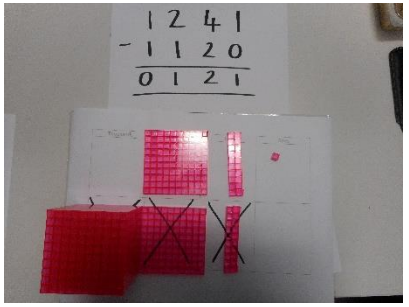
Year 5 Progression in maths

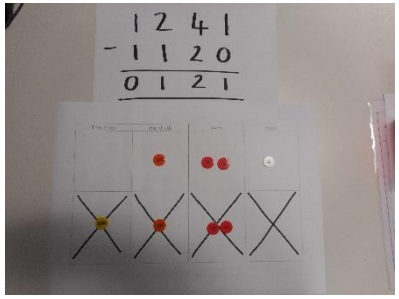
Addition	Pupils should be taught to: ▪ add whole numbers with more than 4 digits, including using formal written methods (columnar addition) ▪ add numbers mentally with increasingly large numbers ▪ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ▪ solve addition multi-step problems in contexts, deciding which operations and methods to use and why.	Strategies: • Diennes on PV mats • Place value counters & PV mat once secure with diennes • Expanded column addition **When children fully understand place value, chn should be able to use compact column method competently, ready for year 6.**	LA: up to 4 digits:   	 

<table>
<tr>
<td>Subtraction</td>
<td>Pupils should be taught to:

▪ subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction)
▪ subtract numbers mentally with increasingly large numbers
▪ use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
▪ solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</td>
<td>Strategies:

• Diennes on PV mats
• Place value counters & PV mat once secure with diennes
• Expanded column subtraction

When children fully understand place value, chn should be able to use compact column method competently.</td>
<td> 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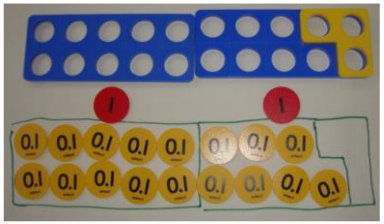
<td> 

1000 and 300 and 70 and 4
- 900 and 60 and 8

1300 and 60 and 14
- 900 and 60 and 8
400 and 0 and 6

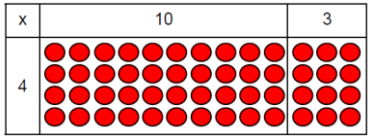
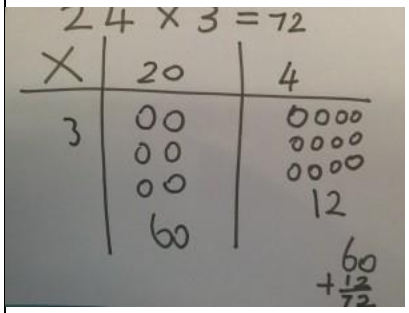
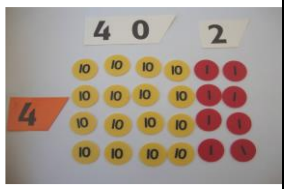
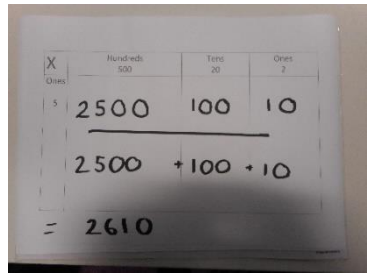
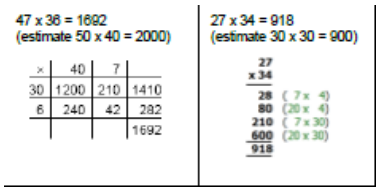
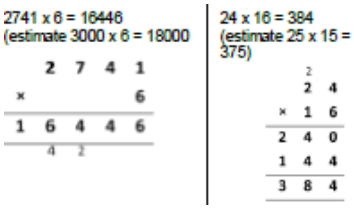
Decomposition: 1374 - 968 = 406

932 – 457 becomes

8 12 1
9 3 2
– 4 5 7

4 7 5

Answer: 475</td>
</tr>
</table>

Multiplication	Pupils should be taught to: ▪ 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 (non-prime) numbers ▪ establish whether a number up to 100 is prime and recall prime numbers up to 19 ▪ 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 ▪ multiply numbers mentally drawing upon known facts ▪ multiply whole numbers and those involving decimals by 10, 100 and 1000 • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) ▪ solve problems involving multiplication including using their knowledge of factors and multiples, squares and cubes ▪ solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign ▪ solve problems involving multiplication including scaling by simple fractions and problems involving simple rates.	Strategies: • Grid method using diennes • Grid method using place value counters when secure with diennes • Pictorial representation of grid method • Grid method • Timestable grids • Expanded column method **When children fully understand place value, chn should be able to use compact column method competently.**	For lower ability to solidify understanding:  HTUxU  4 digits and up: Use column grid method ALONGSIDE concrete resources. 2 5 X 4 2 0 (5 x 4) 8 0 (20 x 4) 1 0 0  	  

Division	Pupils should be taught to: ▪ 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 (non-prime) numbers ▪ establish whether a number up to 100 is prime and recall prime numbers up to 19 ▪ ▪ divide numbers mentally drawing upon known facts ▪ 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 ▪ divide whole numbers and those involving decimals by 10, 100 and 1000 ▪ solve problems involving division including using their knowledge of factors and multiples, squares and cubes ▪ solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign ▪ solve problems involving division, including scaling by simple fractions and problems involving simple rates.	Strategies: • Grouping with concrete resources (low attainers who lack understanding of concept) • Timestable grids • Short division using diennes • Short division using place value counters **When children fully understand place value, chn should be able to use compact short division competently.**	For children not working at a year 5 level: Draw dots and group them to divide an  amount and clearly show a remainder. Children to only move on to short division when they fully understand PV.