

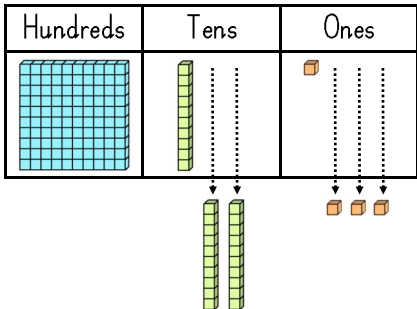
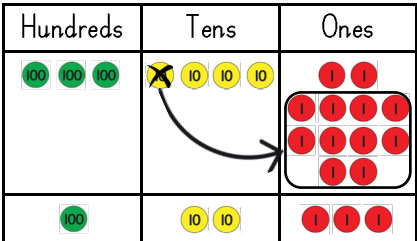
Year 3 Maths

Addition

Concrete	Pictorial	Abstract																								
Column addition - no regrouping																										
Use base ten resources to represent hundreds, tens and ones. Add the ones first, then the tens, then the hundreds. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> </tbody> </table> Use place value counters to represent hundreds, tens and ones. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> <tr> <td>300</td><td>70</td><td>5</td></tr> </tbody> </table>	Hundreds	Tens	Ones				Hundreds	Tens	Ones				300	70	5	Draw place value counters into a place value grid, before totalling first the ones, then the tens, then the hundreds. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> <tr> <td>500</td><td>80</td><td>6</td></tr> </tbody> </table> $500 + 80 + 6 = 586$	Hundreds	Tens	Ones				500	80	6	Represent addition using the column method, correctly aligning the digits. Add first the ones, then the tens, then the hundreds. $\begin{array}{r} 552 \\ + 36 \\ \hline 588 \end{array}$
Hundreds	Tens	Ones																								
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Column addition - regrouping																										
Use place value counters to exchange ten ones for a ten. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> </tbody> </table> $300 + 70 + 1 = 371$ Exchange ten tens for one hundred. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> </tbody> </table> $500 + 40 + 1 = 541$	Hundreds	Tens	Ones				Hundreds	Tens	Ones				Draw a representation of a place value grid to show the exchanging of ones or tens underneath the digits. <table border="1"> <thead> <tr> <th>Hundreds</th><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> <tr> <td>400</td><td>70</td><td>6</td></tr> </tbody> </table>	Hundreds	Tens	Ones				400	70	6	Represent addition using the column method, correctly aligning the digits. Add first the ones, then the tens, then the hundreds. Record any carrying underneath. $\begin{array}{r} 476 \\ + 485 \\ \hline 961 \\ 11 \end{array}$			
Hundreds	Tens	Ones																								
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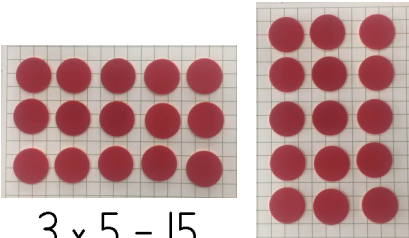
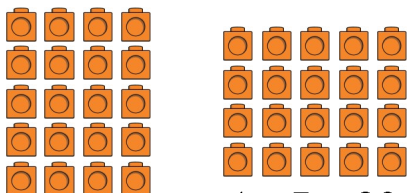
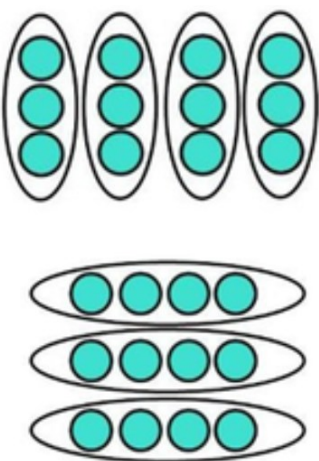
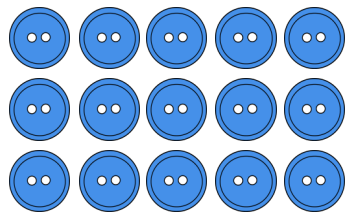
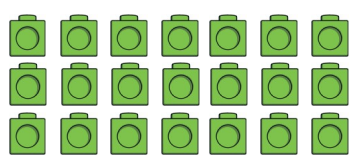
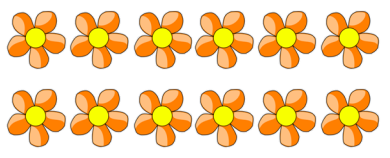
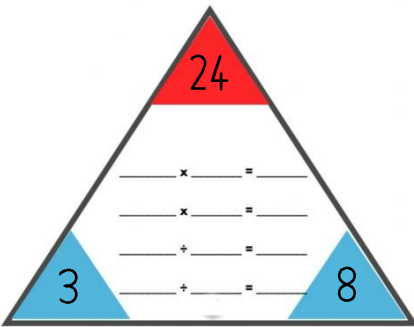
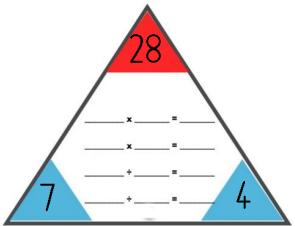
Year 3 Maths

Subtraction

Concrete	Pictorial	Abstract																						
Column subtraction - no regrouping																								
Use base ten to represent the larger amount, then remove the smaller amount to find what is left.  $134 - 23 = 111$	Draw the place value counters into a place value grid, before subtracting first the ones, then the tens, then the hundreds. <table border="1" data-bbox="579 658 997 806"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>6 3 2</td><td>2 0</td><td>1</td></tr></tbody></table> $632 - 201 = 431$ Count back in hundreds, tens and ones on a number line. 	Hundreds	Tens	Ones	6 3 2	2 0	1	Represent subtraction using the column method, correctly aligning the digits. Subtract first the ones, then the tens, then the hundreds. <table border="1" data-bbox="1069 732 1409 1041"><tbody><tr><td></td><td>2</td><td>9</td><td>8</td></tr><tr><td>-</td><td>1</td><td>3</td><td>6</td></tr><tr><td></td><td>1</td><td>6</td><td>2</td></tr></tbody></table>		2	9	8	-	1	3	6		1	6	2				
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Column subtraction - regrouping																								
Use base ten or place value counters to model exchanging a ten for ten ones, enabling subtraction of the ones.  $342 - 123 = 219$	Draw the place value counters into a place value grid, before subtracting first the ones, then the tens, then the hundreds. <table border="1" data-bbox="579 1498 997 1899"><thead><tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr></thead><tbody><tr><td>3 4 2</td><td>4 0</td><td>2</td></tr></tbody></table> $835 - 74 = 761$	Hundreds	Tens	Ones	3 4 2	4 0	2	Represent subtraction using the column method, correctly aligning the digits. Subtract first the ones, then the tens, then the hundreds. Record any exchanging. <table data-bbox="1085 1594 1367 1890"><tbody><tr><td></td><td>3</td><td>1</td><td></td></tr><tr><td></td><td>~~3~~</td><td>~~4~~</td><td>3</td></tr><tr><td>-</td><td>2</td><td>3</td><td>7</td></tr><tr><td></td><td>1</td><td>0</td><td>6</td></tr></tbody></table>		3	1			~~3~~	~~4~~	3	-	2	3	7		1	0	6
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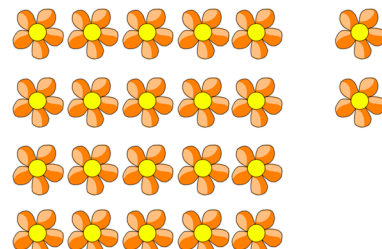
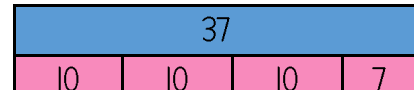
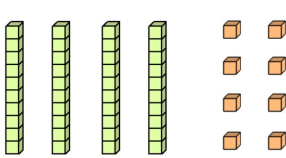
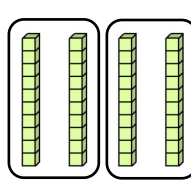
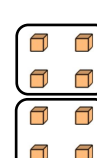
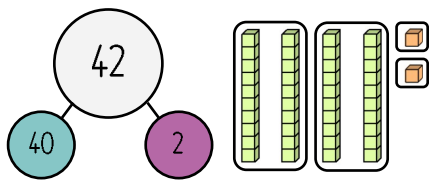
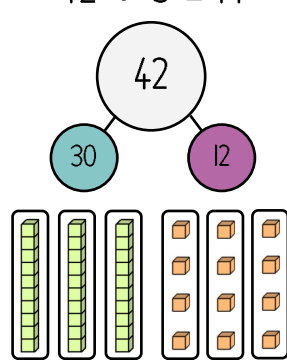
Year 3 Maths

Multiplication

Concrete	Pictorial	Abstract
Exploring commutativity		
Create arrays using counters or cubes, demonstrating that multiplication is commutative.  $3 \times 5 = 15$ $5 \times 3 = 15$ The order of the multiplication does not matter; the answer will be the same.  $5 \times 4 = 20$ $4 \times 5 = 20$	Draw representations of arrays to represent multiplication calculations and explore commutativity. 	Represent multiplication (and derived division facts) using various models and images, reinforcing repeated addition.  $3 \times 5 = 15$ $5 \times 3 = 15$ $15 \div 5 = 3$ $15 \div 3 = 5$ $5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$
Using the inverse		
Create arrays from practical equipment, deriving both multiplication and division number facts from them.  3 rows of 7 = 21 cubes 7 columns of 3 = 21 cubes 21 cubes shared between 3 rows = 7 21 cubes grouped into 7s = 3  2 rows of 6 = 12 cubes 6 columns of 2 = 12 cubes 12 cubes shared between 2 rows = 6 12 cubes grouped into 6s = 2	Use fact family triangles to show the relationship between multiplication and division facts.  $3 \times 8 = 24$ $8 \times 3 = 24$ $24 \div 8 = 3$ $24 \div 3 = 8$	Show all 8 related number sentences for a given array or family fact triangle.  $3 \times 8 = 24$ $8 \times 3 = 24$ $24 = 3 \times 8$ $24 = 8 \times 3$ $24 \div 8 = 3$ $24 \div 3 = 8$ $3 = 24 \div 8$ $8 = 24 \div 3$

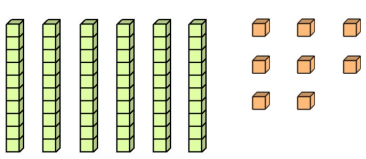
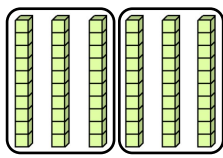
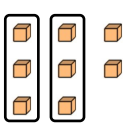
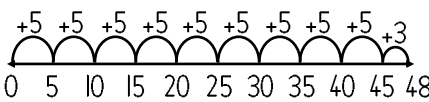
Year 3 Maths

Division

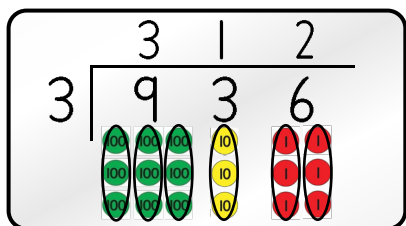
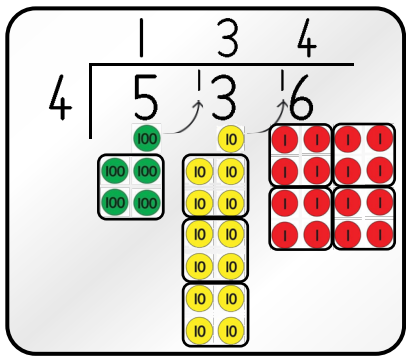
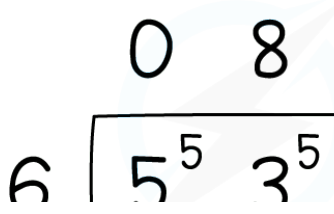
Concrete	Pictorial	Abstract
Understanding remainders		
Use equipment to demonstrate that a remainder occurs when a set of objects cannot be divided equally any further.  $17 \div 4 = 4 \text{ remainder } 1$   $14 \div 3 = 4 \text{ remainder } 2$ 	Draw arrays to represent division with remainders.  $22 \div 5 = 4 \text{ remainder } 2$ Use bar models to demonstrate division with remainders.  $37 \div 10 = 3 \text{ remainder } 7$	Reason about why the remainder is what cannot be shared equally from a set. $22 \div 5 = ?$ $3 \times 5 = 15$ $4 \times 5 = 20$ $5 \times 5 = 25, \text{ which is larger than } 22.$ So $22 \div 5$ must be 4 remainder 2.
2-digit numbers divided by 1-digit numbers - no remainders		
Explore dividing 2-digit numbers by 1-digit numbers using place value equipment. $48 \div 2 = ?$  First divide the tens.  Then divide the ones. 	Explore which partitions support particular divisions. $42 \div 2 = 21$  Some number may have to be partitioned in a different way. $42 \div 3 = 14$ 	Partition flexibly to divide where appropriate. $56 \div 4 = ?$ 56 can be partitioned into 50 and 6, but these are <u>not</u> multiples of 4. 56 can be partitioned into 40 and 16, which <u>are</u> multiples of 4. $40 \div 4 = 10$ $16 \div 4 = 4$ $10 + 4 = 14$ so $56 \div 4 = 14$

Year 3 Maths

Division

Concrete	Pictorial	Abstract
2-digit numbers divided by 1-digit numbers - with remainders		
Use place value counters to explore the idea of a remainder. $68 \div 3 = ?$  First, divide the tens.  Then, divide the ones.  $68 \div 3 = 22 \text{ remainder } 2$	Demonstrate grouping on a number line to divide and identify remainders.  $48 \div 5 = 9 \text{ remainder } 3$ Draw groups of objects to divide and identify remainders.  $39 \div 4 = 9 \text{ remainder } 3$	Partition flexibly to divide where appropriate. 67 children try to make 5 equal lines. Can they do it? Are there any remainders? 67 can be partitioned into 50 and 17. $50 \div 5 = 10$ $17 \div 5 = 3 \text{ remainder } 2$ $67 \div 5 = 13 \text{ remainder } 2$

Short division

Use place value counters to explore the short division method. Progress to drawing this method.  Carry any remainders as you go, recording these before the next digit along. If they occur at the end of the calculation, record them after the answer. 	Use the formal written short division method to divide larger numbers, remembering to carry any remainders along as you go. 
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