Addition

Key language which should be used: sum, total, parts and wholes, plus, add, altogether, more than, 'is equal to' 'is the same as, increase, makes, addition

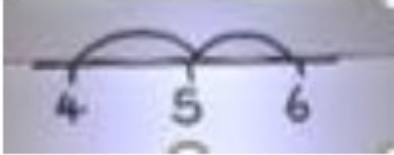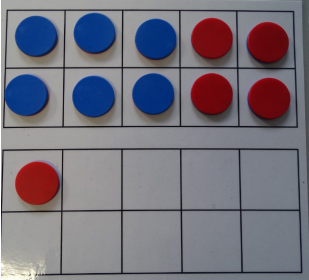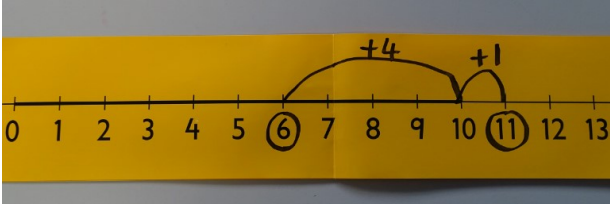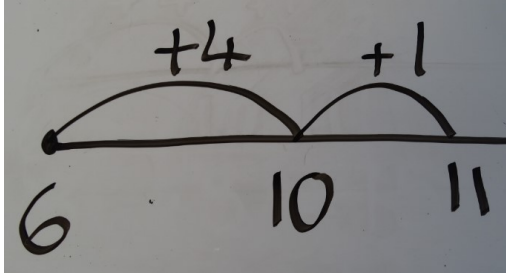| Concrete	Pictorial	Abstract
Combining two parts to make a whole (use other resources too e.g. eggs, shells, teddy bears etc)		4 + 3 = 7 (four is a part, 3 is a part and the whole is seven)
Counting on from the biggest number using number lines by using cubes or numicon	A bar model which encourages the children to count on	The abstract number line: What is 2 more than 4? What is the sum of 4 and 4? What's the total of 4 and 2? 4 + 2
Regrouping to make 10 by using ten frames and counters/cubes	Children to use a number line to make 10	The abstract number line:

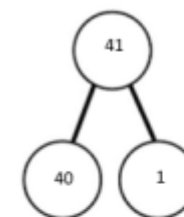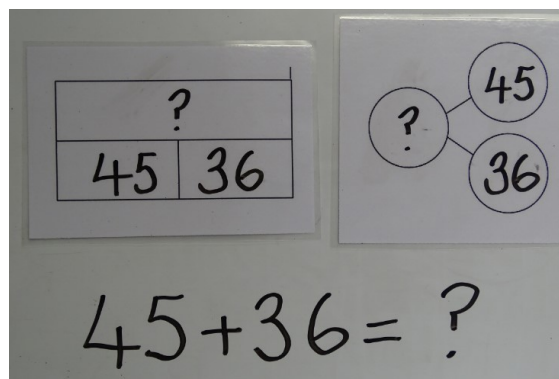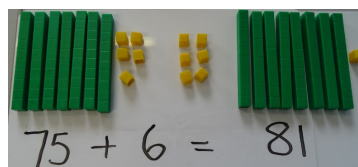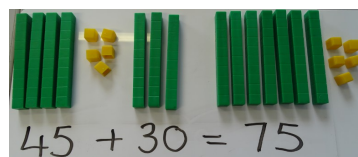| Concrete	Pictorial	Abstract
TO + O using Dienes. Continue to develop understanding of partitioning and place value 41 + 8 	Children to represent the concrete using a particular symbol e.g. lines for tens and dot/crosses for ones. T | | | | O X XXXXXXXX	41 + 8 $1 + 8 = 9$ $40 + 9 = 49$ $$\begin{array}{r} 4\ 1 \\ +\quad 8 \\ \hline 4\ 9 \end{array}$$
TO + TO using Dienes. Use partitioning and bridging 10. 45 + 36 45 + 30 = 75 75 + 6 = 81	. 45 | 36 ? 45 36 45 + 36 = ?	Children to start with the largest number and add the tens and then the ones. 45 + 36 45 + 30 = 75 75 + 6 = 81

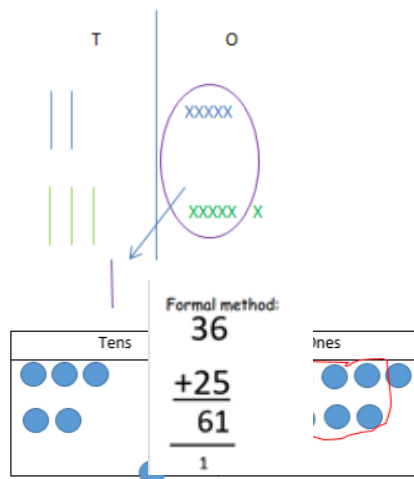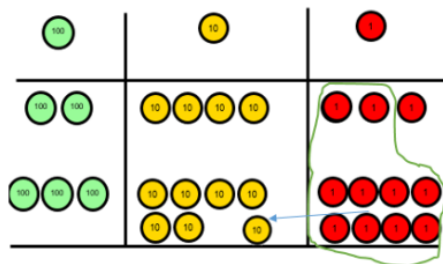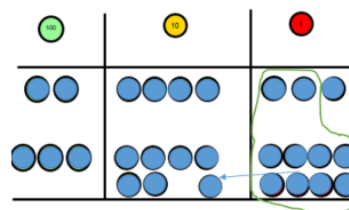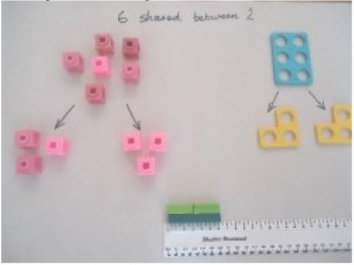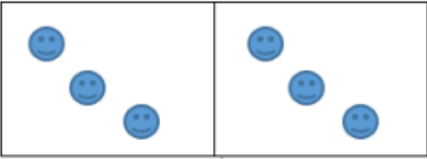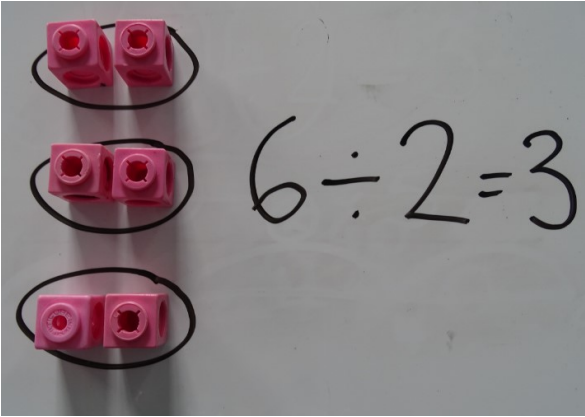| Concrete	Pictorial	Abstract
TO + TO using Dienes. Continue to develop understanding of partitioning and place value and use this to support addition. Begin with no exchanging. 36 + 25	This could be done one of two ways:	Expanded and formal written methods
Use of place value counters to add HTO + TO, HTO + HTO etc. once the children have had practice with this, they should be able to apply it to larger numbers and the abstract	Children to represent the counters e.g. like the image below If the children are completing a word problem, draw a bar model to represent what it's asking them to do	
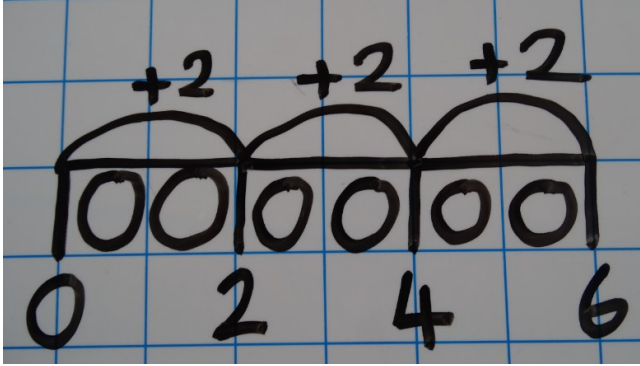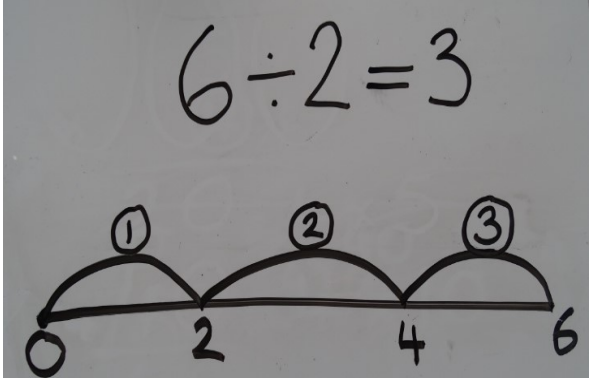
Division

Key language which should be used: share, group, divide, divided by, half, 'is equal to' 'is the same as' , remainder, dividend , divisor, quotient.

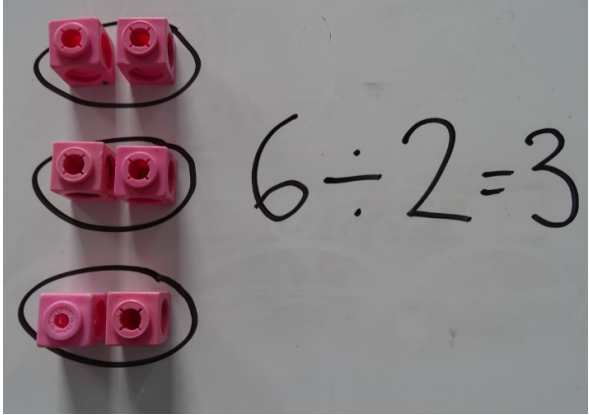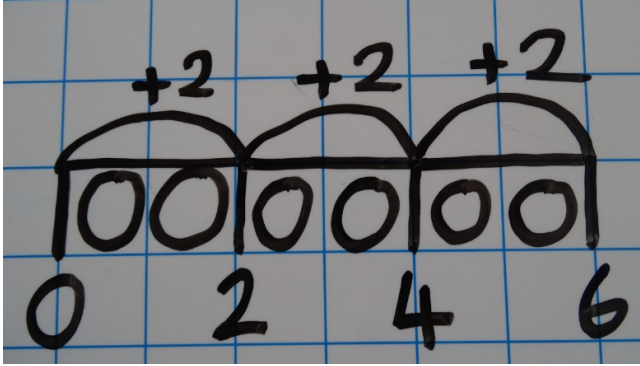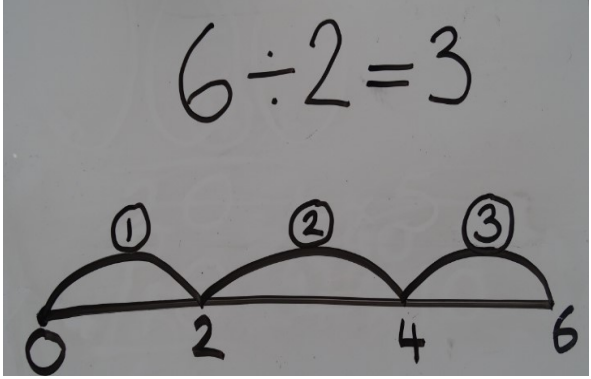| Concrete	Pictorial	Abstract
6 shared between 2 (other concrete objects can also be used e.g. children and hoops, teddy bears, cakes and plates) 	 This can also be done in a bar so all 4 operations have a similar structure: 	$6 \div 2 = 3$ What's the calculation?
Understand division as repeated grouping $6 \div 2$ 		

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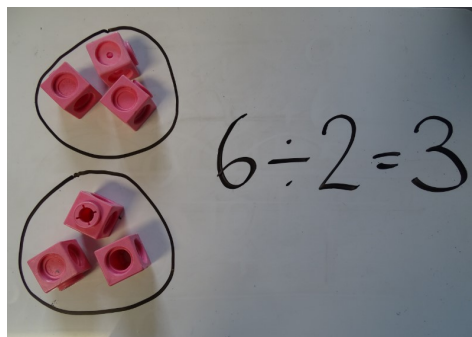| Concrete	Pictorial	Abstract
6 shared between 2 (other concrete objects can also be used e.g. children and hoops, teddy bears, cakes and plates) 	 This can also be done in a bar so all 4 operations have a similar structure: 	6 ÷ 2 = 3 What's the calculation?
Understand division as repeated grouping 6 ÷ 2 		

Division

Concrete	Pictorial	Abstract
Understand division as sharing 6 ÷ 2 6÷2=3	 6÷2=3	
Division with arrays. 15÷3=5 15÷5=3	3 5⟌●●●●● 3 5⟌15 5 3⟌●●●●● 5 3⟌15	Show the inverse with division and multiplication facts. 15 ÷ 3 = 5 15 ÷ 5 = 3 5 × 3 = 15 3 × 5 = 15
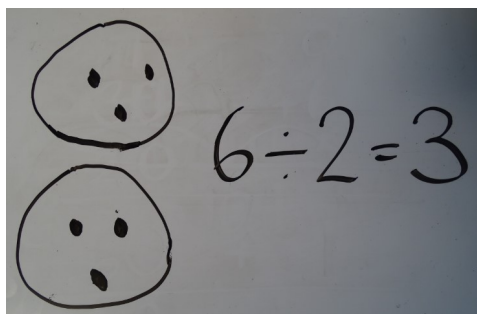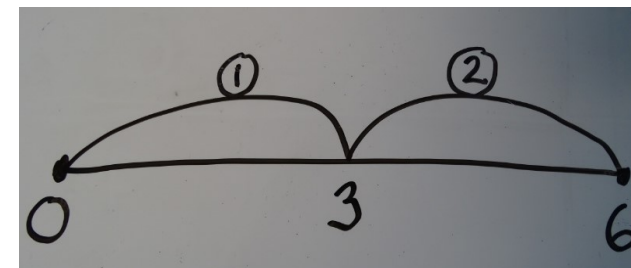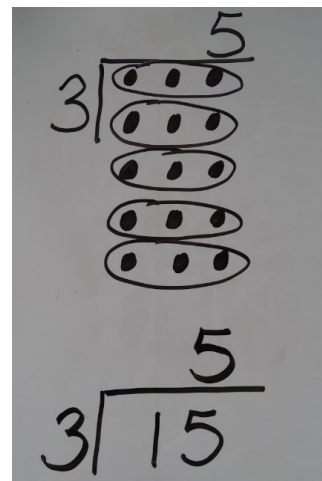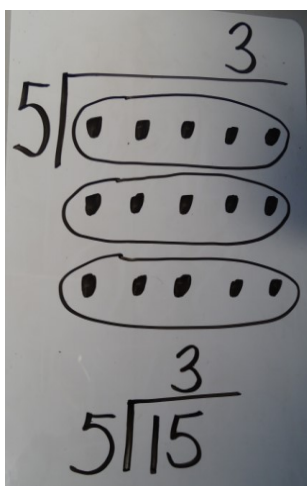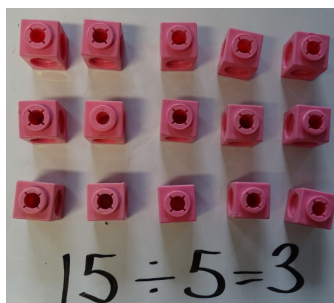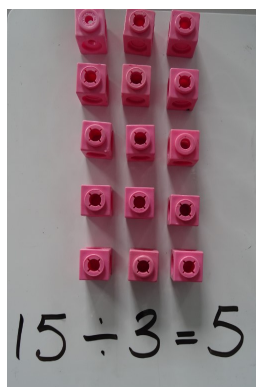
Division

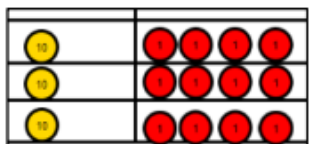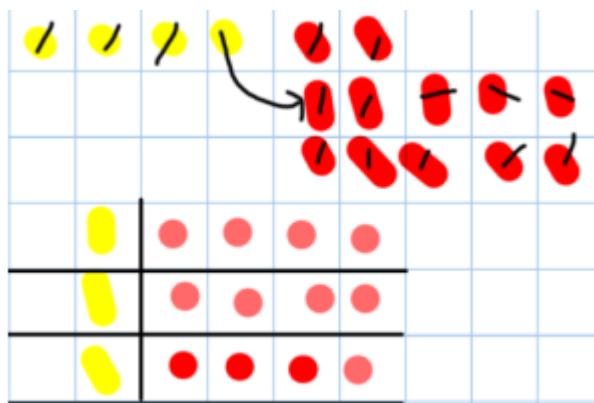| Concrete	Pictorial	Abstract
Sharing using place value counters. 42 ÷ 3= 14 1. Make 42. Share the 4 tens between 3. Can we make an exchange with the extra 10? Exchange the ten for 10 ones and share out 12 ones		42 ÷ 3 42 = 30 + 12 30 ÷ 3 = 10 12 ÷ 3 = 4 10 + 4 = 14
Use of the 'bus stop method' using grouping and counters. Key language for grouping - how many groups of X can we make with X hundreds'- this can also be done using sharing! 615 ÷ 5 Step 1: make 615 Step 2: Circle your groups of 5 Step 3: Exchange 1H for 10T and circle groups of 5 Step 4: exchange 1T for 10ones and circles groups of 5	This can easily be represented pictorially, till the children no longer to do it. It can also be done to decimal places if you have a remainder! 	$$\begin{array}{r} 123 \\ 5\overline{)6^{1}1^{1}5} \end{array}$$
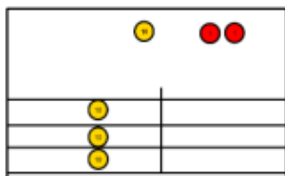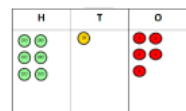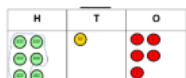
Division

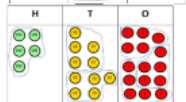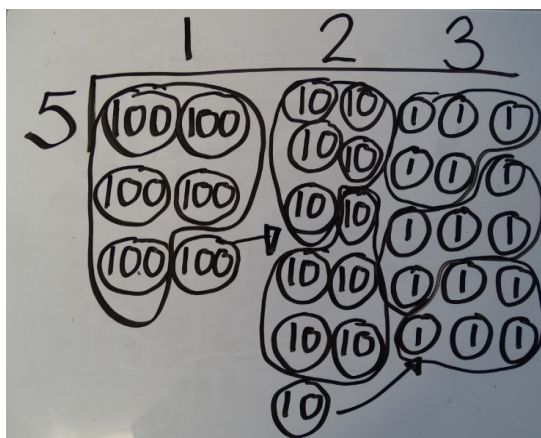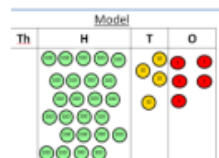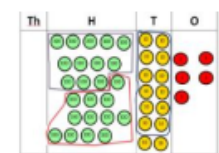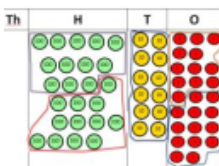| Concrete	Pictorial	Abstract
2544 ÷ 12 0212 12) 2544 24 14 12 24 24 0 How many groups of 12 thousands do we have? None Exchange 2 thousand for 20 hundreds. 02 12) 2544 24 1 How many groups of 12 are in 25 hundreds? 2 groups. Circle them. We have grouped 24 hundreds so can take them off and we are left with one. 021 12) 2544 24 14 12 2 Exchange the one hundred for ten tens so now we have 14 tens. How many groups of 12 are in 14? 1 remainder 2. Exchange the two tens for twenty ones so now we have 24 ones. How many groups of 12 are in 24? 2	Children to represent the counters, pictorially and record the subtractions beneath.	0 12) 2544 Step one- exchange 2 thousand for 20 hundreds so we now have 25 hundreds. 02 12) 2544 24 1 Step two- How many groups of 12 can I make with 25 hundreds? The 24 shows the hundreds we have grouped. The one is how many hundreds we have left. 021 12) 2544 24 14 12 2 Exchange the one hundred for 10 tens. How many groups of 12 can I make with 14 tens? The 14 shows how many tens I have, the 12 is how many I grouped and the 2 is how many tens I have left. 0212 12) 2544 24 14 12 24 24 0 Exchange the 2 tens for 20 ones. The 24 is how many ones I have grouped and the 0 is what I have left.