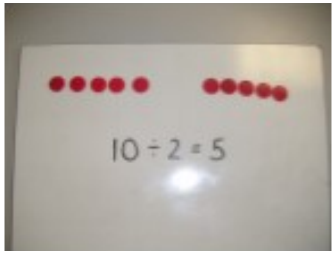
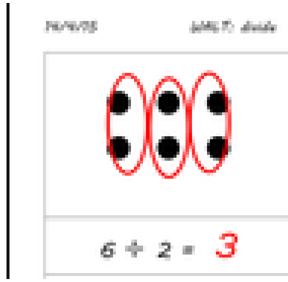
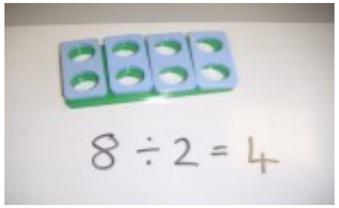
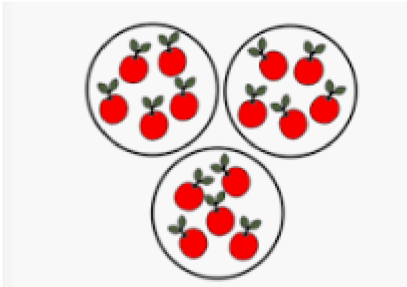
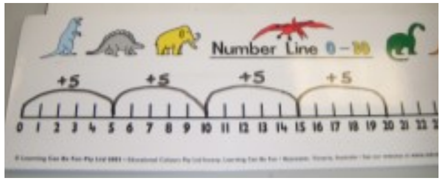
Division

Skill	Concrete	Pictorial	Abstract
Solve simple practical problems involving sharing through activities using objects and moving onto pictures and marks. Use language of share and equal groups.	*How can you share out the pencils so that each pot contains the same?*   *Can you share 12 sweets between two children?* 		
Use objects or structured apparatus to solve grouping problems	*How many cars can we make if we have 12 wheels?* 		

Skill	Concrete	Pictorial	Abstract
Sharing Introduce the division symbol emphasising its meaning to share.	*10 sweets shared between 2 people. How many do they get each?* Represent pictorially or with counters 		
Grouping Use grouping to solve division problems interpreting 8 ÷ 2 as how many 2s make 8?	*There are 8 sweets. How many people can have 2 sweets each?* (use Numicon to represent or record pictorially)  Record as 8 ÷ 2 = 4 (make links to multiplication)		

<table>
<tr><th>Skill</th><th>Concrete</th><th>Pictorial</th><th>Abstract</th></tr>
<tr>
<td>Understand division as repeated addition
(Use practical equipment/marked number lines/empty number lines to illustrate this).</td>
<td>Group physical objects together to represent the calculation.
</td>
<td>Use marked number lines to represent the calculation.
e.g. 20 ÷ 5 would be interpreted as how many groups of 5 are in 20
20 ÷ 5 = 4

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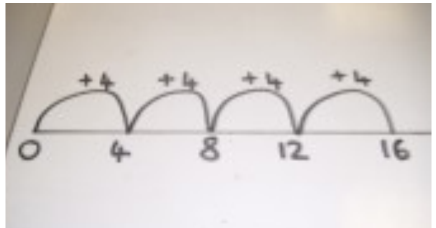
<td>Use empty number lines to represent the calculation 16 ÷ 4 = 4

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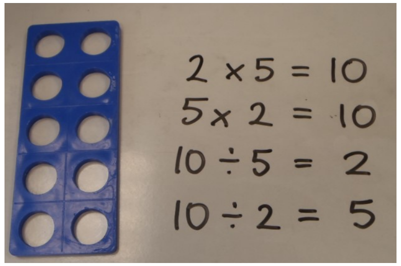
<tr>
<td>Use number families to understand the link and relationship between x and ÷. E.g. Use pictures, numbers and symbols to show how this trio of numbers are linked;</td>
<td>
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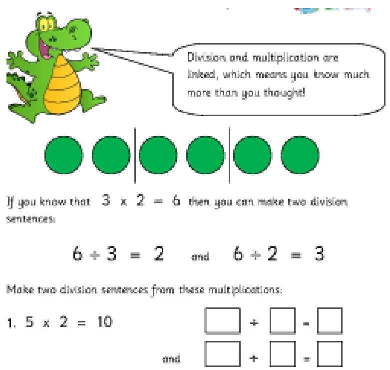
<td>
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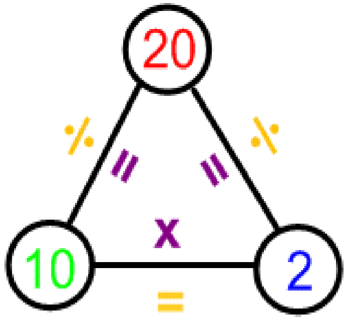
<td>
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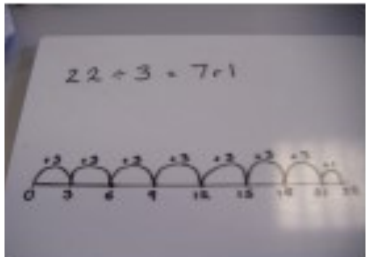
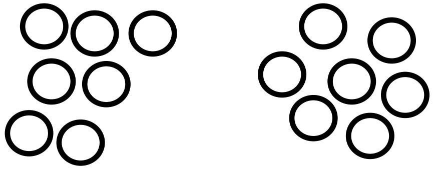
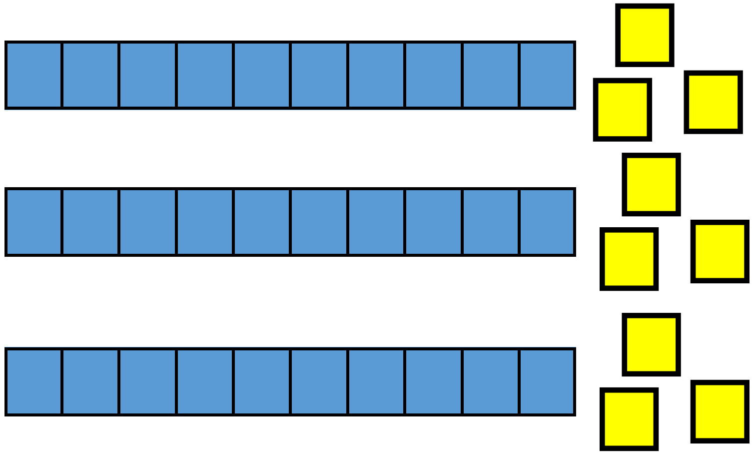
Skill	Concrete	Pictorial	Abstract
Begin to explore division with remainders	e.g. 42 ÷ 10 = 4 remainder 2 modelled with Cuisenaire rods/marked and then empty number lines. 	Use an empty number line to solve division problems with remainders. e.g. 22 ÷ 3 	

Skill	Concrete	Pictorial	Abstract
Pupil can derive and use doubles and halves of simple two-digit numbers. They understand halving as a way of 'undoing' doubling and vice versa. *(c.f. Multiplication policy)*	e.g. grouping objects in pairs— How many pairs? *Half of 6* 	Drawing circles in two groups e.g. half of 14 	***e.g.*** *When I doubled a number the answer was 18. Which number did I double?* *There are 28 children in a class. Half of them are girls, how many are boys?* *Write the missing number:* *26 —> half —> [ ]* *[ ] —> double —> 30* Halve 16, 24, 42, 68

Skill	Concrete	Pictorial	Abstract
Pupil writes and calculates mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Pupil uses doubles of all numbers to 100 and identifies corresponding halves.	Using Dienes rods and cubes E.g. 39 ÷ 3 		6 x 4 = 24 so 24 ÷ 4 = 6 12 x 8 = 96 so 96 ÷8 = 12 *e.g. Show me how you would work out* *52 ÷ 4* 95 ÷ 8.

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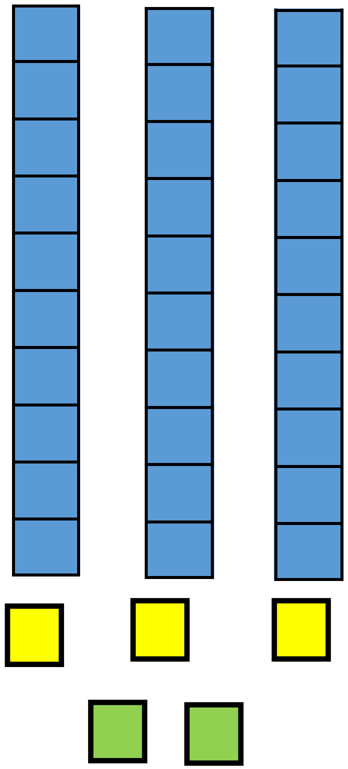
<td>Pupil recalls and uses division facts for the 3, 4 and 8 multiplication tables.

Pupil understands that division is the inverse of multiplication and vice versa.

Pupil solves problems, including missing number problems, involving multiplication and division (and interpreting remainders).

(c.f. Multiplication policy)</td>
<td>35 ÷ 3 = 11 rem 2
</td>
<td>Use multiplication table

E.g. 24 ÷ 8 =

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<tr><th>×</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr>
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<td>e.g. Write the missing number in the empty box to make these calculations correct:

48 ÷ 8 = [ ]

[ ] ÷ 4 = 8

64 ÷ [ ] = [ ] x 4

There are 33 children here today. How many teams of 8 can we make?
If there are twenty-six sweets in a pack and four children, how many sweets will they each get? How many will be left? Circle each number which has a remainder of 1 when divided by 3: 26, 13, 25, 37, 31, 23.</td>
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<td>Pupil recalls multiplication and division facts for multiplication tables up to 12 x 12.

Pupil solves problems involving division (including interpreting remainders) and integer scaling problems.

Pupil can divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</td>
<td></td>
<td>Use multiplication table
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<tr><th>×</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr>
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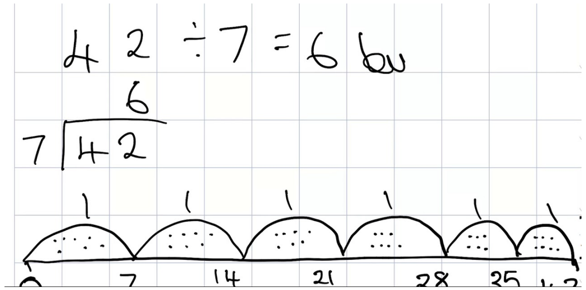
<td>e.g. Write the missing number in the empty box to make these calculations correct

$\square \div 9 = 9$

$132 \div 12 = \square$

$144 \div \square = \triangle \times 4$

Write some division calculations that have the answer 7 remainder 2.
How do you do this?

</td>
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Short division

98 ÷ 7 becomes	432 ÷ 5 becomes	496 ÷ 11 becomes
$\begin{array}{r} 1\;4 \\ 7\overline{)\,9\;{}^{2}8} \end{array}$	$\begin{array}{r} 8\;6\;\text{r}\,2 \\ 5\overline{)\,4\;3\;{}^{3}2} \end{array}$	$\begin{array}{r} 4\;5\;\text{r}\,1 \\ 11\overline{)\,4\;9\;{}^{5}6} \end{array}$
Answer: 14	Answer: 86 remainder 2	Answer: $45\frac{1}{11}$

Skill	Concrete	Pictorial	Abstract
Pupil can use partitioning to halve any number, including decimals to one decimal place.			*e.g. What is half:* *6.4, 1274, 9.8, 6322?* *Half of 1000 = 500* *Half of 200 = 100* *Half of 70 = 35* *Half of 4 = 2* *so* *Half of 1274 = 637*