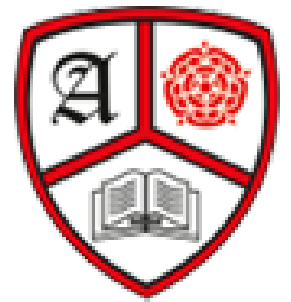


Anderton Primary School

Maths Mastery Calculation Policy

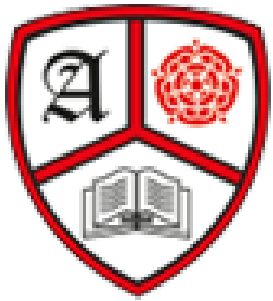


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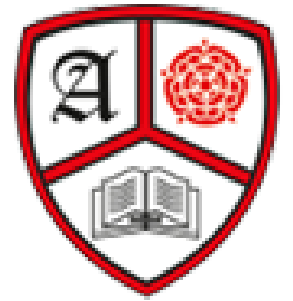
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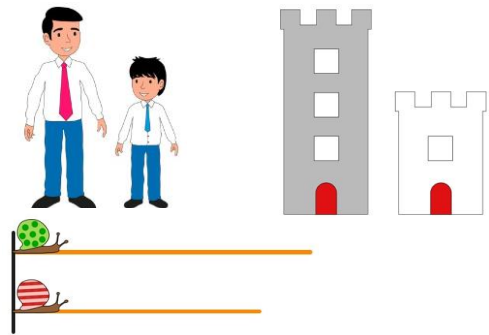
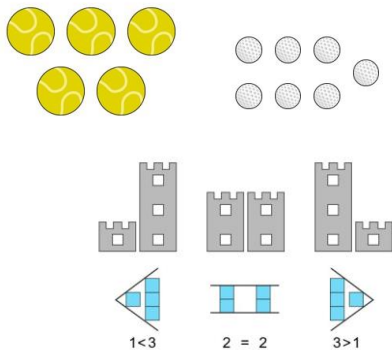
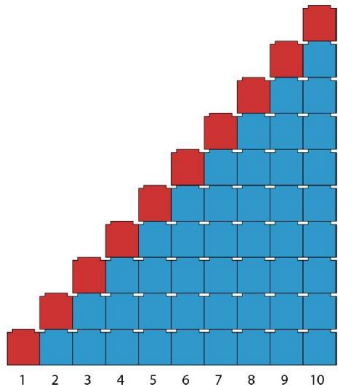
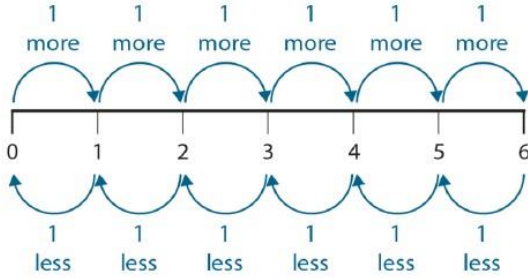
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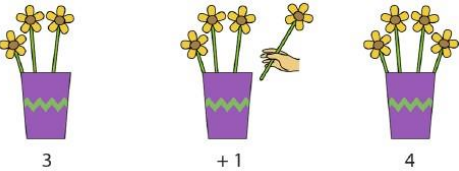
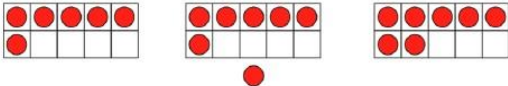

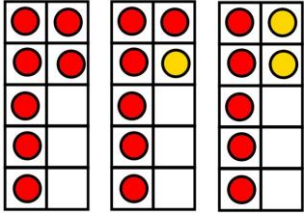
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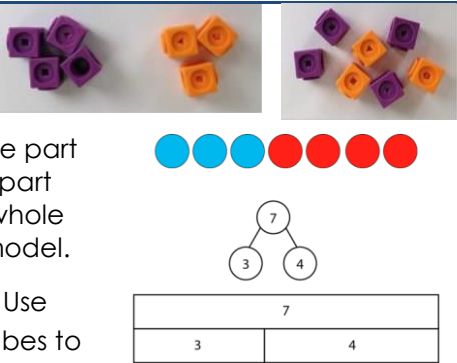
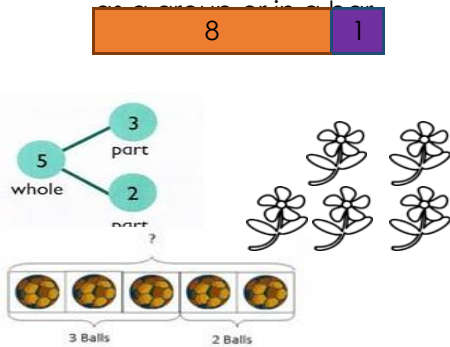

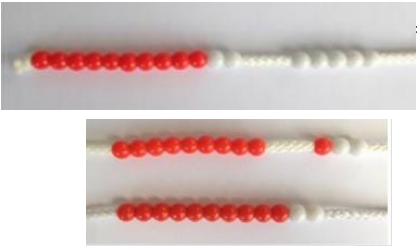
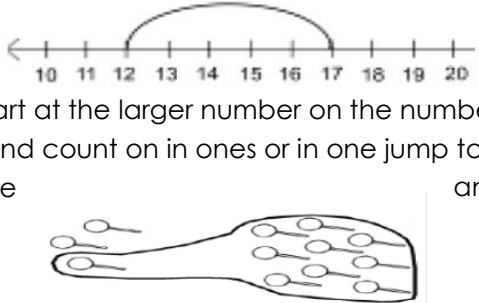
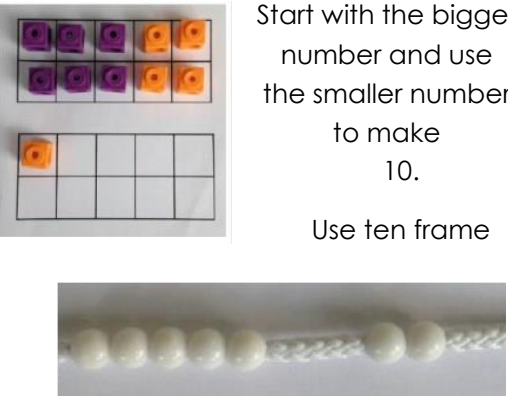
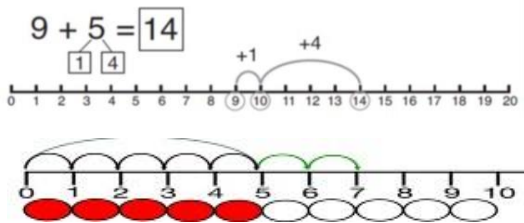


Year 1 Addition



| Objective, Strategy Key Vocabulary | Concrete | Pictorial | Abstract |
|--|---|---|---|
| <p>Comparing Objects, groups of objects</p> <p>Length, weight, mass, heavier, lighter, same, equal</p> | <p>People's height, distance, mass.</p> <p>Use of pan balances using Numicon or similar to show equivalence, $<$ $>$</p> <p>Comparing multiple objects</p> <p>Use of concrete materials eg. Compare bears, jewels, cubes etc to create groups of different sizes to compare</p> |  | |
| <p>Using $<$ $>$ and $=$</p> <p>Fewer, more, less than, more than, equal to, fewer than</p> | <p>Use a multilink staircase in two colours</p> |  | <p>Use variation with missing boxes and missing symbols.</p> <p>$3 \bigcirc 4$ $4 > \square$</p> <p>$2 \bigcirc 2$ $\square < 6$</p> |
| <p>Finding one more, finding one less</p> |  |  | <p>One more/less sentences – example one:</p> <p>1 more than 3 is \square</p> <p>1 less than 2 is \square</p> <p>1 more than \square is 1</p> <p>1 less than \square is 1</p> |

| Objective, Strategy & Key Vocabulary | Concrete | Pictorial | Abstract |
|---|--|--|---|
| Adding 1 gives 1 more | <p>First Then Now</p>  <p>3 + 1 4</p> | <p>First Then Now</p>  | $\begin{array}{ccc} 6 & + 1 & 7 \\ \hline & & \rightarrow \\ & & 6 + 1 = 7 \end{array}$ |
| Augmentation— increasing an amount | <p>Use FIRST, THEN, NOW and range of practical situations for showing augmentation.</p> <p>E.g. first there were three chn on carpet then 2 more came. Now there are 5 chn on the carpet.</p> | <p>First Then Now</p>  | $\begin{array}{ccc} 4 & + 3 & 7 \\ \hline & & \rightarrow \\ & & 4 + 3 = 7 \end{array}$ |
| Stories of numbers within 10 | <p>Children should work with doubled sided counters and ten frame.</p> <p>Start with 7 red, turn one over, tell me the 'story'?</p> <p>Turn one more over. What is the 'story'?</p> <p>Continue.</p> <p>Complete this for stories of all numbers up to 10.</p> |  <p>7 + 0 = 7 6 + 1 = 7 5 + 2 = 7 etc.</p> <p>Complete for all numbers up to 10</p> | $\begin{array}{l} 7 + 0 = 7 \\ 6 + 1 = 7 \\ 5 + 2 = 7 \\ 4 + 3 = 7 \\ 3 + 4 = 7 \\ 2 + 5 = 7 \\ 1 + 6 = 7 \\ 0 + 7 = 7 \end{array}$ |

| Objective, Strategy Key Vocabulary | Concrete | Pictorial | Abstract |
|---|--|--|--|
| <p>Combining two parts to make a whole: part-whole model</p> |  <p>Use part part whole model.</p> <p>Use cubes to add two numbers together as a group or in a bar.</p> | <p>Use pictures to add two numbers together</p>  |  <p>$4 + 3 = 7$</p> <p>$10 = 6 + 4$</p> <p>Use the part whole diagram as shown above to move into the abstract.</p> |
| <p>Regrouping to make 10.</p> <p><i>This is an essential skill for column addition later.</i></p> |  <p>$= 11$</p> <p>2 more than 5.</p> |  <p>Start at the larger number on the number line and count on in ones or in one jump to find the answer.</p> <p>$3 + 9 =$</p> | <p>$7 + 4 = 11$</p> <p>If I am at seven, how many more do I need to make 10. How many more do I add on now?</p> |
| <p>Represent & use number bonds and related subtraction facts within 20</p> |  <p>Start with the bigger number and use the smaller number to make 10.</p> <p>Use ten frame</p> | <p>Use pictures or a number line. Regroup or partition the smaller number using the part whole model to make 10.</p>  | <p>Emphasis should be on the language</p> <p>'1 more than 5 is equal to 6.'</p> <p>'2 more than 5 is 7.' '8 is 3 more than 5.'</p> |

Adding 1 and 2

Bonds to 10

Adding 10

Bridging/
compensating

Doubles

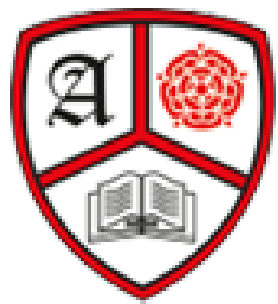
Adding 0

Near doubles

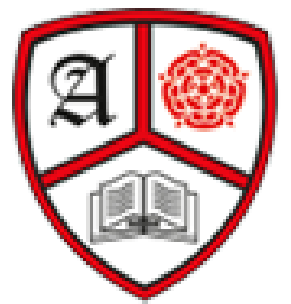
Y1 facts

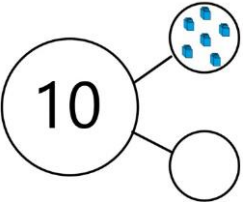
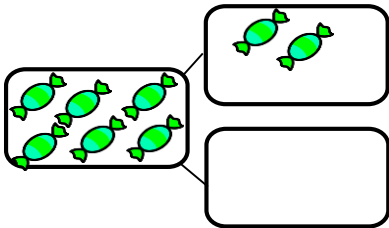
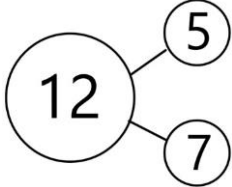
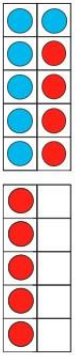
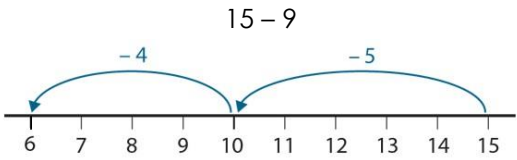
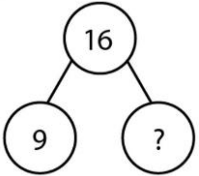
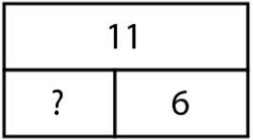
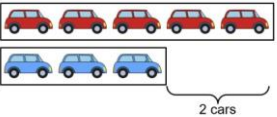
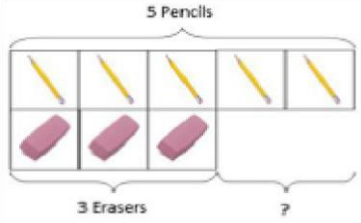
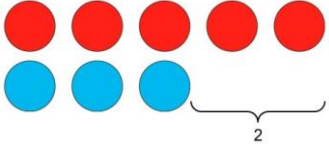
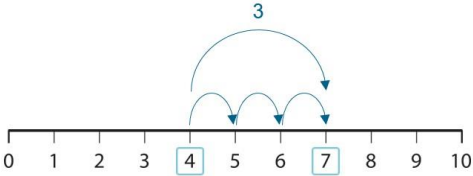
Y2
facts

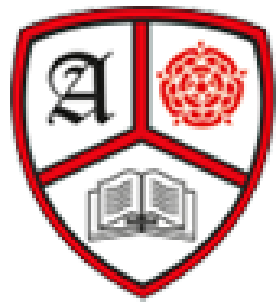
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|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 0 | 0 + 0 | 0 + 1 | 0 + 2 | 0 + 3 | 0 + 4 | 0 + 5 | 0 + 6 | 0 + 7 | 0 + 8 | 0 + 9 | 0 + 10 |
| 1 | 1 + 0 | 1 + 1 | 1 + 2 | 1 + 3 | 1 + 4 | 1 + 5 | 1 + 6 | 1 + 7 | 1 + 8 | 1 + 9 | 1 + 10 |
| 2 | 2 + 0 | 2 + 1 | 2 + 2 | 2 + 3 | 2 + 4 | 2 + 5 | 2 + 6 | 2 + 7 | 2 + 8 | 2 + 9 | 2 + 10 |
| 3 | 3 + 0 | 3 + 1 | 3 + 2 | 3 + 3 | 3 + 4 | 3 + 5 | 3 + 6 | 3 + 7 | 3 + 8 | 3 + 9 | 3 + 10 |
| 4 | 4 + 0 | 4 + 1 | 4 + 2 | 4 + 3 | 4 + 4 | 4 + 5 | 4 + 6 | 4 + 7 | 4 + 8 | 4 + 9 | 4 + 10 |
| 5 | 5 + 0 | 5 + 1 | 5 + 2 | 5 + 3 | 5 + 4 | 5 + 5 | 5 + 6 | 5 + 7 | 5 + 8 | 5 + 9 | 5 + 10 |
| 6 | 6 + 0 | 6 + 1 | 6 + 2 | 6 + 3 | 6 + 4 | 6 + 5 | 6 + 6 | 6 + 7 | 6 + 8 | 6 + 9 | 6 + 10 |
| 7 | 7 + 0 | 7 + 1 | 7 + 2 | 7 + 3 | 7 + 4 | 7 + 5 | 7 + 6 | 7 + 7 | 7 + 8 | 7 + 9 | 7 + 10 |
| 8 | 8 + 0 | 8 + 1 | 8 + 2 | 8 + 3 | 8 + 4 | 8 + 5 | 8 + 6 | 8 + 7 | 8 + 8 | 8 + 9 | 8 + 10 |
| 9 | 9 + 0 | 9 + 1 | 9 + 2 | 9 + 3 | 9 + 4 | 9 + 5 | 9 + 6 | 9 + 7 | 9 + 8 | 9 + 9 | 9 + 10 |
| 10 | 10 + 0 | 10 + 1 | 10 + 2 | 10 + 3 | 10 + 4 | 10 + 5 | 10 + 6 | 10 + 7 | 10 + 8 | 10 + 9 | 10 + 10 |



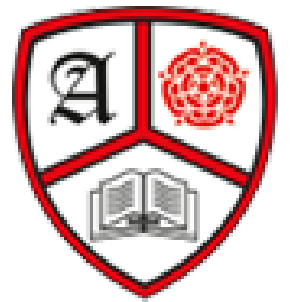
Year 1 Subtraction

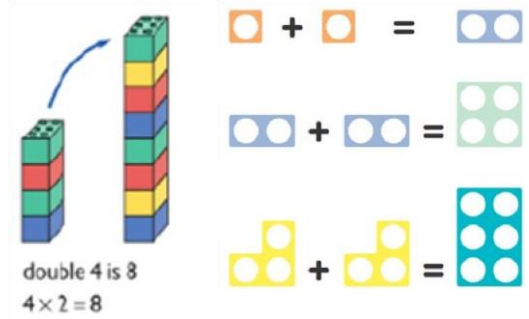
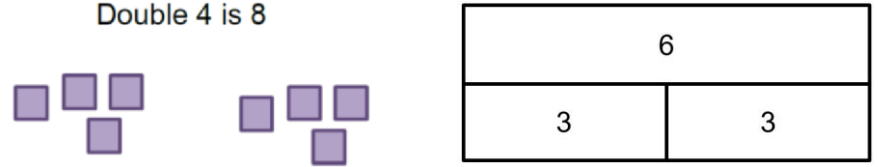

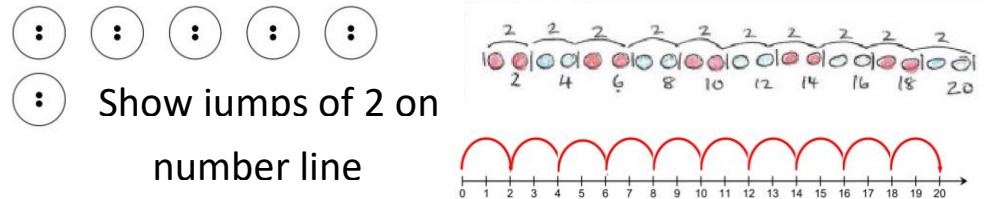
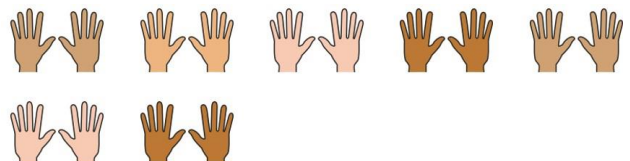
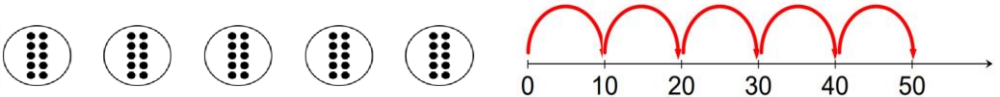

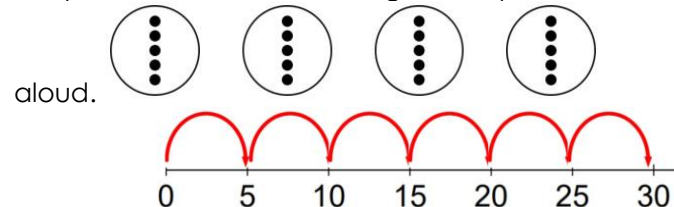


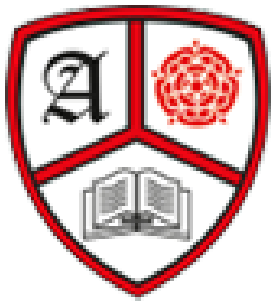
| Objective, Strategy | Concrete | Pictorial | Abstract |
|--|---|--|--|
| <p>Represent and use number bonds and related subtraction facts within 20</p> <p>Part-Part-Whole model</p> |  <p>Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the parts, what's the other part? $10 - 6 = 4$</p> |  <p>Use pictorial representations to show the part.</p> | <p>Move to using numbers within the part whole model.</p>  <p> $12 - 5 = 7$ $12 - 7 = 5$ $7 = 12 - 5$ $5 = 12 - 7$ </p> |
| <p>Subtract by making ten</p> | <p>$15 - 9$</p> <p>Make 15 on the ten frame. Take 5 away to make ten, then take 4 more away so that you have taken 9.</p>  <p> $15 - 9$ $5 \quad 4$ $15 - 5 = 10$ $10 - 4 = 6$ $15 - 9 = 6$ </p> | <p>$15 - 9$</p>  <p>Jump back 5 first, then another 4. Use ten as the stopping point.</p> | <p>$16 - 9$</p> <p>How many do we take off first to get to 10? How many left to take off?</p>   |
| <p>Compare numbers by finding the difference.</p> |  <p>There are 2 more red cars than blue cars.</p>  <p>There are 2 more pencils than erasers.</p> |  <p>$5 - 3 = 2$</p> <p>Use a number line to count on..</p>  | <p>Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister?</p> |



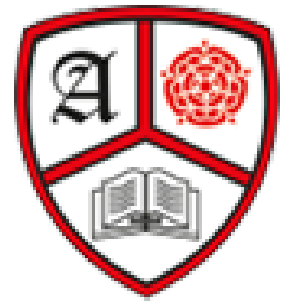
Year 1 Multiplication

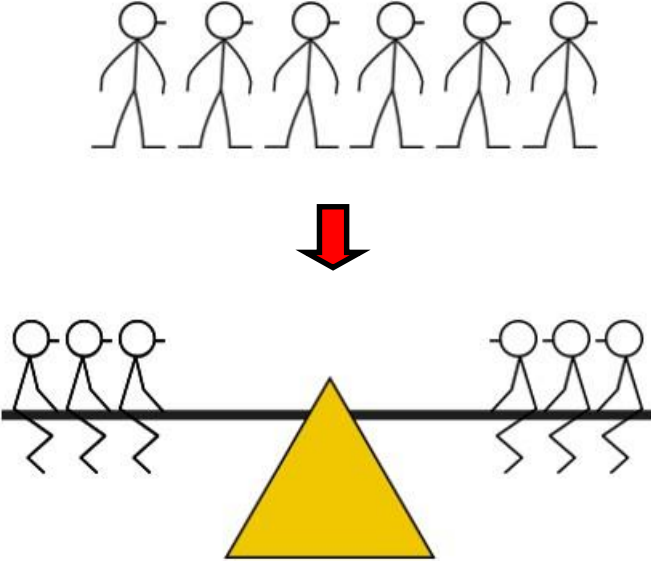
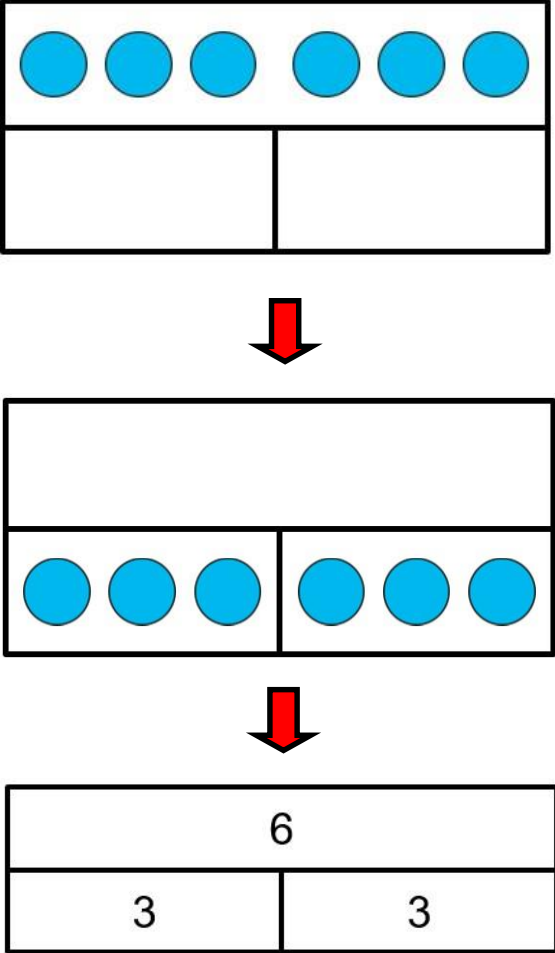


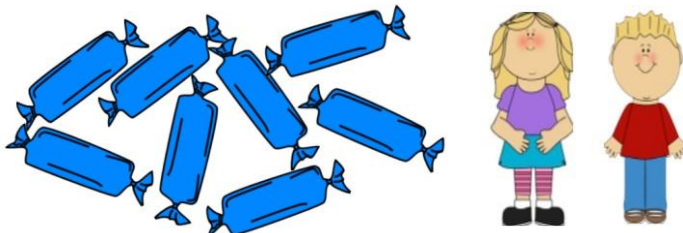
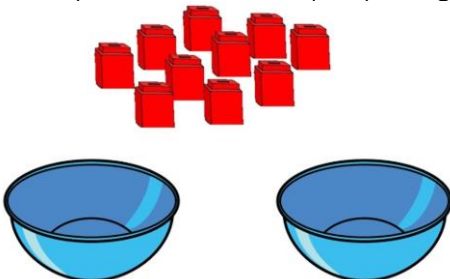
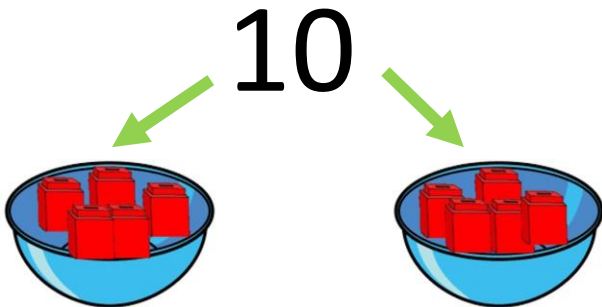
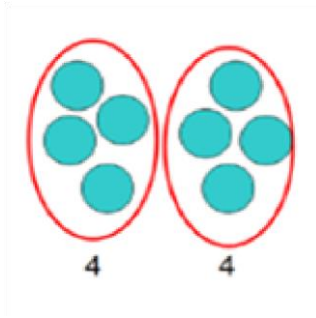
| Objective & Strategy | Concrete | Pictorial |
|--------------------------|---|--|
| Double numbers to 10 | <p>Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling</p>  <p>double 4 is 8 $4 \times 2 = 8$</p> | <p>Draw pictures and bar models to show how to double numbers</p> <p>Double 4 is 8</p>  |
| Counting in groups of 2 | <p>Count in 2s using real life objects and contexts.</p>  | <p>Children make representations to show counting in multiples of 2. Count in multiples of a number aloud.</p> <p>Show jumps of 2 on number line</p>  |
| Counting in groups of 10 | <p>Use real life objects and contexts to count in groups of 10</p>  | <p>Use and draw representations for counting in multiples of 10. Count in multiples of 10 aloud Show jumps of 10 on a number line</p>  |
| Counting in groups of 5 | <p>Use real life objects and contexts to count in groups of 5</p>  | <p>Use and draw representations for counting in multiples of 5. Count in 5s aloud.</p>  |



Year 1 Division



| Objective & Strategy | Concrete | Pictorial |
|------------------------------------|--|--|
| <p>Find half of numbers to 20.</p> | <p>Real life and practical contexts are used to find half of numbers up to 20.</p>  <p>The diagram shows a sequence of two illustrations. The top illustration shows six stick figures standing in a row. A large red arrow points down to the second illustration, which shows a balance scale with a yellow triangular base. On each side of the scale, there are three stick figures, demonstrating that half of six is three.</p> | <p>Children use manipulatives to represent real life problems.</p>  <p>The diagram shows a sequence of three ten-frame illustrations connected by red arrows. The first frame shows six blue circles in the top row and empty spaces in the bottom row. The second frame shows the same six blue circles, but they are now arranged in two rows of three, with a vertical line separating the two groups. The third frame shows the number '6' in the top row and the number '3' in each of the two bottom rows, separated by a vertical line.</p> <p>half of 6 = 3 double 3 = 6</p> |

| Objective & Strategy | Concrete | Pictorial |
|--|--|---|
| <p>Understand division as sharing into equal groups</p> <p>Use White Rose ITPs for modelling</p> | <div data-bbox="465 245 1146 478">  </div> <p data-bbox="504 486 1160 518">Children solve real life problems using real objects.</p> <p data-bbox="427 651 1238 715">There are eight sweets. Daisy and Will share these equally. How many do they get each?</p> <p data-bbox="461 750 1205 782">I have 10 cubes, can you share them equally in 2 groups?</p> <div data-bbox="667 782 1115 1061">  </div> <p data-bbox="546 1074 1115 1106">There are 2 equal groups. Each group has 5.</p> <div data-bbox="573 1136 1173 1444">  </div> | <p data-bbox="1373 619 2024 651">Children use pictures or shapes to share quantities.</p> <p data-bbox="1547 686 1850 718">8 shared between 2 is 4</p> <div data-bbox="1534 758 1848 1077">  </div> |