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| Knowledge and Strategy | STAGE 0 | Emergent |
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| Learning Outcomes KNOWLEDGE I am learning to..... | | | | | | | | | |
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| Sequencing and Ordering | NI | Read numbers to 5 first and then to 10 | 0, 1, 2, 3, 4, 5 6, 7, 8, 9, 10 | | | | | | | |
| | | Count forwards to 5 first and then to 10 | 0, 1, 2, 3, 4, 5...10 | | | | | | | |
| | | Count backwards from 5 first and then from 10 | 5, 4, 3, 2, 1, 0 | | | | | | | |
| | | Say the number after a number (in the range 1- 5) | 3, 4, | | | | | | | |
| | | Say the number before a number (in the range 1 - 5) | , 4, 5 | | | | | | | |
| | | Order numbers to 5 first and then to 10 | 5 3 1 2 4 | | | | | | | |

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| STRATEGY I am learning to..... | | | | | | | | | |
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| Count a set of objects up to 5 first and then to 10 by one-to-one matching |  1 2 3 3 ladybirds | | | | | | | | |
| Form a set of objects up to 5 first and then to 10 by one-to-one matching | <i>Get 2 teddies</i> 1 2  | | | | | | | | |

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| Knowledge and Strategy | STAGE 1 | One-to-One Counting |
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| | | <h2 style="margin: 0;">Learning Outcomes</h2> <h3 style="margin: 0;">KNOWLEDGE</h3> <p style="margin: 0;">I am learning to.....</p> |
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| NI | Read numbers to 10 | 7, 6, 8 | | | | | | | | |
| Sequencing and Ordering | Count forwards to 10 | 1, 2, 3, 4, 5, | | | | | | | | |
| | Count backwards from 10 | 10, 9, 8, 7, 6 | | | | | | | | |
| | Say the number after a number (in the range 1- 10) | 4, 5, | | | | | | | | |
| | Say the number before a number (in the range 1 - 10) | , 4, 5 | | | | | | | | |
| | Order numbers to 10 | 5 3 1 8 2 7 | | | | | | | | |
| Grouping | Instantly recognise patterns to 5 | | | | | | | | | |

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| | | <h2 style="margin: 0;">STRATEGY</h2> <p style="margin: 0;">I am learning to.....</p> |
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| Count and form a set of objects up to 10 | 1 2 3 4 5 6 7 7 faces | | | | | | | | | |
| Join and split objects in groups | | | | | | | | | | |

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| KNOWLEDGE | STAGE 2 | Counting From One On Materials | | | | | | | | |
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| Learning Outcomes | | | | | | | | | | |
| Knowledge | | | | | | | | | | |
| I am learning to... | | | | | | | | | | |

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| NI | Read any number up to 20 | 17, 6, 18 | | | | | | | | |
| Sequencing and Ordering | Count forwards from any number up to 20 | 14, 15, 16 | | | | | | | | |
| | Count backwards from any number up to 20 | 15, 14, 13 | | | | | | | | |
| | Say the number after a number in the range 1- 20 | 14, 15, | | | | | | | | |
| | Say the number before a number in the range 1 - 20 | , 14, 15 | | | | | | | | |
| | Order numbers to 20 | 6, 13, 17, 20 | | | | | | | | |
| Basic Facts | Know groupings within 5 | 3 and 2 4 and 1 | | | | | | | | |
| | Know groupings with 5 | 5 and 2 | | | | | | | | |
| Frac'n | Read symbols for halves and quarters | $\frac{1}{2}$ $\frac{1}{4}$ | | | | | | | | |




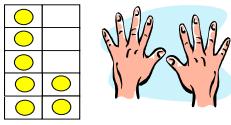
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| STRATEGY | | | | | | | | | | |
| I am learning to..... | | | | | | | | | | |

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| Solve + problems to 10 by counting all the objects | $6 + 3 = 9$ | | | | | | | | |
| Solve - problems to 10 by counting all the objects | $6 - 3$ | | | | | | | | |

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| KNOWLEDGE | STAGE 3 | Counting From One By Imaging |
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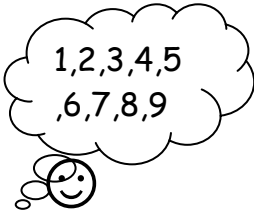
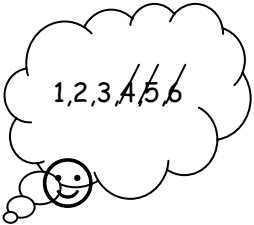
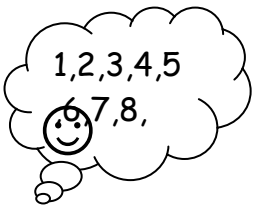
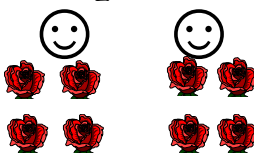
At this stage these are the key pieces of knowledge that the children need to learn.

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| <h2>Learning Outcomes</h2> <h3>Knowledge</h3> <p>I am learning to...</p> | | | | | | | | | |
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| NI | Read any number up to 20 | 17, 6, 18 | | | | | | | | | |
| Sequencing & Ordering | Count forwards from any number up to 20 | 14, 15, 16 | | | | | | | | | |
| | Count backwards from any number up to 20 | 15, 14, 13 | | | | | | | | | |
| | Say the number after a number in the range 1- 20 | 14, 15,  _____ | | | | | | | | | |
| | Say the number before a number in the range 1 - 20 |  _____, 14, 15 | | | | | | | | | |
| | Order numbers to 20 | 6, 13, 17, 20 | | | | | | | | | |
| | Skip count forwards & backwards in 2's, 5's & 10's | | 2, 4, 6, 8, 10.....20 | | | | | | | | |
| | | | 5, 10, 15, 20.....50 | | | | | | | | |
| | | 10, 20, 30. 40....100 | | | | | | | | | |
| Grouping / PV / Basic Facts | Know groupings within 10 |  7 and 3 | | | | | | | | | |
| | Instantly recognise patterns to 10 - doubles and 5 based |  | | | | | | | | | |
| | Know doubles to 10 | $5 + 5 = 10$ | | | | | | | | | |
| Fract'n | Read symbols for halves and quarters | $\frac{1}{2}$ $\frac{1}{4}$ | | | | | | | | | |

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| STRATEGY | STAGE 3 | Counting From One By Imaging |
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At this stage the children are learning to

| Learning Outcomes Strategy I am learning to... | | | | | | | | | | |
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| <p>ADDITION</p> <p>Solve simple + problems by counting all the objects in their head</p> | <p>$6 + 3 =$</p>  | | | | | | | | | |
| <p>SUBTRACTION</p> <p>Solve simple - problems by counting all the objects in their head.</p> | <p>$6 - 3 =$</p>  | | | | | | | | | |
| <p>MULTIPLICATION</p> <p>Solve simple x and ÷ problems by counting all the objects</p> | <p>$4 \times 2 =$</p>  | | | | | | | | | |
| <p>FRACTIONS</p> <p>Find $\frac{1}{2}$ and $\frac{1}{4}$ of shapes or sets to 20 by equal sharing of the objects</p> | <p>$\frac{1}{2}$ of 8 =</p>  | | | | | | | | | |

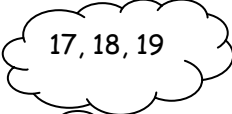

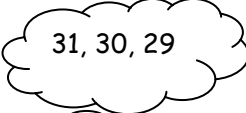

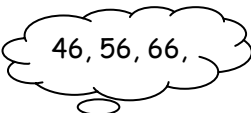
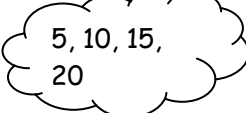



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| KNOWLEDGE | STAGE 4 | Advanced Counting |
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At this stage these are the key pieces of knowledge that the children need to learn.

| Learning Outcomes Knowledge I am learning to... | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|
| NI | Read any number up to 100 | 17, 26, 38 | | | | | | | | | |
| Sequencing & Ordering | Count forwards from any number up to 100 | 34, 35, 36 | | | | | | | | | |
| | Count backwards from any number up to 100 | 75, 74, 73 | | | | | | | | | |
| | Say the number after and before a number 1- 100 | 54, 55, | | | | | | | | | |
| | | , 54, 55 | | | | | | | | | |
| | Order numbers to 100 | 26, 33, 54, 71 | | | | | | | | | |
| | Count forwards & backwards in 2's, 5's, & 10's to 100 | 2, 4, 6, 8,..... 100 | | | | | | | | | |
| 5, 10, 15, 20.....100 | | | | | | | | | | | |
| 10, 20, 30,40.....100 | | | | | | | | | | | |
| Grouping/ PV | Know number of 10's in decades | six 10's in 60 | | | | | | | | | |
| | Know groupings within 20 | 17 + 3, 4 + 16 | | | | | | | | | |
| Basic Facts | Know teen number facts | 10 + 6 = 16 10 + ? = 18 | | | | | | | | | |
| | Know multiples of 10 that add to 100 | 30 + 70 = 100 | | | | | | | | | |
| | Know doubles and halves to 20 | 3 + 3, 6 - 3 $\frac{1}{2}$ of 6 | | | | | | | | | |
| | Know addition facts to 10 | 4 + 3 = 7 | | | | | | | | | |
| Fract'n | Read unit fractions | $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}, \frac{1}{10}$ | | | | | | | | | |



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| <h1>STRATEGY</h1> | <h1>STAGE 4</h1> | <h1>Advanced Counting</h1> |
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At this stage the children are learning to

| <h2 style="text-align: center;">Learning Outcomes</h2> <h3 style="text-align: center;">Strategy</h3> <p style="text-align: center;">I am learning to...</p> | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| <p style="text-align: center;">ADDITION</p> <p>Solve + problems by counting on from the largest number in my head.</p> | $16 + 3 =$   | | | | | | | | |
| <p style="text-align: center;">SUBTRACTION</p> <p>Solve - problems by counting back from the largest number in my head.</p> | $32 - 3 =$   | | | | | | | | |
| <p>Solve + and - problems by counting on or back in ones and tens</p> | $36 + 40 =$  | | | | | | | | |
| <p style="text-align: center;">MULTIPLICATION</p> <p>Solve x problems by skip counting in 2's, 5's, or 10's</p> | $4 \times 5 =$   | | | | | | | | |
| <p style="text-align: center;">FRACTIONS</p> <p>Find $\frac{1}{2}$ and $\frac{1}{4}$ of sets and shapes by equal sharing</p> | $\frac{1}{2}$ of 8 =   | | | | | | | | |

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| KNOWLEDGE | STAGE 5 | Early Additive Part-Whole |
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At this stage these are the key pieces of knowledge that the children need to learn.

| Learning Outcomes Knowledge I am learning to.... | | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|
| NI | Read any number up to 1000 | 333, 479, 983 | | | | | | | |
| Sequencing & Ordering | Count forwards & backwards by 1's, 10's, 100's | 325, 335,..1000 | | | | | | | |
| | Say the number 1 more, 10 more, 100 more | 145, 155,  | | | | | | | |
| | Say the number 1 less, 10 less, 100 less |  _____, 154, 164 | | | | | | | |
| | Order numbers to 1000 | 126, 433, 754, | | | | | | | |
| | Skip count forwards & backwards in 3's, | 3, 6, 9, 12.....30 <i>(as well as in 2's, 5's, & 10's)</i> | | | | | | | |
| Fractions | Know unit fraction symbols | $\frac{1}{2}, \frac{1}{4}, \frac{1}{3}, \frac{1}{5}, \frac{1}{10}$ | | | | | | | |
| | Order fractions with the same denominators | $\frac{1}{4}, \frac{3}{4},$ | | | | | | | |
| Grouping / PV | Know groupings of 10's in a 3 digit number | 327 = 32 tens | | | | | | | |
| | Know groupings to 100 | 43 and 57 | | | | | | | |
| | Round 3 digit numbers to the nearest 10 or 100 | 246 → 250 | | | | | | | |
| Basic Facts | Know addition facts to 20 | 12 + 8 = 20 | | | | | | | |
| | Know multiples of 100 that add to 1000 | 400 and 600 | | | | | | | |
| | Know multiplication & division facts for x2,x5,x10 | 5 x 2 = 10 60 ÷ 10 = 6 | | | | | | | |

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| STRATEGY | STAGE 5 | Early Additive Part-Whole |
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At this stage the children are learning to.....

| Learning Outcomes Strategy I am learning to.... | | | | | | | | | | |
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| <p style="text-align: center;">ADDITION & SUBTRACTION</p> <p style="text-align: center;">Solve simple problems mentally using basic facts they know:</p> <ul style="list-style-type: none"> • Doubles: $8 + 7 = 8 + 8 - 1$ • Fives: $8 + 7 = 5 + 3 + 5 + 2$ • Making Tens: $8 + 7 = 8 + 2 + 5$ | <p>$8 + 7 =$</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> <p>Double 8 is 16 so minus 1</p> </div> | | | | | | | | | |
| <p style="text-align: center;">ADDITION & SUBTRACTION</p> <p style="text-align: center;">Solve 2 & 3 digit problems by:</p> <ul style="list-style-type: none"> • Tidy Numbers: $29 + 18$ as $30 + 17$ • Place Value: $33 + 16$ as $30 + 10 + 3 + 6$ | <p>$29 + 1$ is 30 so now just add 17</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> <p>$29 + 1$ is 30 so now just add 17</p> </div> | | | | | | | | | |
| <p style="text-align: center;">MULTIPLICATION & DIVISION</p> <p style="text-align: center;">Solve problems by:</p> <ul style="list-style-type: none"> • using repeated addition with problems involving 2's, 3's, 4's, 5's and 10's at least • or forming the factors when the basic fact is known. | <p>$8 \times 5 =$</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> <p>$5 + 5 = 10,$ so $10 + 10 + 10 + 10 = 40$</p> </div> | | | | | | | | | |
| <p style="text-align: center;">FRACTIONS</p> <ul style="list-style-type: none"> • Find a fraction of a number by trial and improvement with addition facts. • Find fractions of shapes and lengths including fractions greater than 1 • Order fractions | <p>$\frac{1}{3}$ of 12 =</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; width: fit-content; margin: 10px auto;"> <p>$4 + 4 + 4 = 12,$ so $\frac{1}{3}$ is 4.</p> </div> | | | | | | | | | |

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| KNOWLEDGE | Stage 6 | Advanced Additive |
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At this stage these are the key pieces of knowledge the children need to learn.

| Learning Outcomes Knowledge I am learning to... | | | | | | | | | | |
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| NI / Sequencing & Ordering / Fractions | Read and order any number up to 1000 000 | 698,999 | | | | | | | | |
| | Read decimals to 3 d.p | 0.764 | | | | | | | | |
| | Read any fraction inc. >1 | $\frac{8}{6}, \frac{4}{5}, 1\frac{1}{3},$ | | | | | | | | |
| | Order unit fractions | $\frac{1}{10}, \frac{1}{8}, \frac{1}{4}, \frac{1}{2},$ | | | | | | | | |
| | Say the number 1, 10, 100 and 1000 more or less | 654, 754, 854.. 8432, 7432, ... | | | | | | | | |
| | Count forwards and backwards in $\frac{1}{2}$'s, $\frac{1}{4}$'s, $\frac{1}{3}$'s, $\frac{1}{5}$'s, $\frac{1}{10}$'s | $\frac{8}{10}, \frac{9}{10}, 1, 1\frac{1}{10}$ | | | | | | | | |
| Grouping & Place Value | Know groupings of 10's and 100's in a 4 digit number | 4676 = 467 tens and 46 hundreds | | | | | | | | |
| | Know groupings within 1000 | 455 and 555 200 and 800 | | | | | | | | |
| | Know groups of 2's, 3's, 5's and 10's in numbers to 100 and any remainders | threes in 17 = 5 and 2 remainders | | | | | | | | |
| | Round whole numbers to the nearest 10, 100, 1000 | 5508 → 6000 | | | | | | | | |
| | Round decimals to the nearest whole number | 3.49 → 3 | | | | | | | | |
| Basic Facts | Recall all basic multiplication facts | $3 \times 8 = 24,$ $7 \times 7 = 49$ | | | | | | | | |
| | Recall addition & subtraction facts to 20 | $13 + 5 = 18$ $16 - 9 = 7$ | | | | | | | | |
| | Know what happens when you multiply by 1, 0 or 10 | $14 \times 10 = 140$ | | | | | | | | |

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| STRATEGY | STAGE 6 | Advanced Additive |
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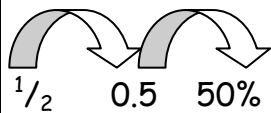
At the Advanced Additive Part-Whole stage the children are learning to . . .

| Learning Outcomes Strategy I am learning to... | | | | | | | | | | | | | | | | | | | | |
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| ADDITION and SUBTRACTION: using a broad range of mental strategies | | | | | | | | | | | | | | | | | | | | |
| Compensation (from Tidy Numbers) | $394 + 79 \rightarrow$ $(394 + 80) - 1$ | | | | | | | | | | | | | | | | | | | |
| Place Value Partitioning | $394 + 79 \rightarrow$ $390 + 70 + 9 + 4$ | | | | | | | | | | | | | | | | | | | |
| Compatible Numbers: | $45 + 37 + 65 \rightarrow$ $(45 + 65) + 37$ | | | | | | | | | | | | | | | | | | | |
| Reversibility: | $403 - 97 \rightarrow$ $97 + ? = 403$ | | | | | | | | | | | | | | | | | | | |
| Equal Additions: (add to both numbers) | $403 - 97 \rightarrow$ $406 - 100$ | | | | | | | | | | | | | | | | | | | |
| Standard written form for Addition | $\begin{array}{r} 4394 \\ + 579 \\ \hline \end{array}$ | | | | | | | | | | | | | | | | | | | |
| Standard Written form for Subtraction | $\begin{array}{r} 2403 \\ - 1097 \\ \hline \end{array}$ | | | | | | | | | | | | | | | | | | | |
| MULTIPLICATION and DIVISION: deriving multiplication facts | | | | | | | | | | | | | | | | | | | | |
| Doubling | $8 \times 3 \rightarrow 2 \times (4 \times 3)$ | | | | | | | | | | | | | | | | | | | |
| Adding and Subtracting | $8 \times 3 \rightarrow (7 \times 3) + 3$ | | | | | | | | | | | | | | | | | | | |
| Reversing | $63 \div 9 \rightarrow 9 \times ? = 63$ | | | | | | | | | | | | | | | | | | | |
| Doubling and halving | $3 \times 12 \rightarrow 6 \times 6$ | | | | | | | | | | | | | | | | | | | |
| Rounding/Compensation: | $9 \times 6 \rightarrow (10 \times 6) - 6$ | | | | | | | | | | | | | | | | | | | |
| Multiplying by tens and hundreds | $70 \times 5 \rightarrow 7 \times 5 \times 10$ | | | | | | | | | | | | | | | | | | | |
| FRACTIONS: using multiplication and division strategies | | | | | | | | | | | | | | | | | | | | |
| Find fractions of whole numbers | $\frac{3}{4}$ of 24 = ? $\frac{3}{4}$ of what is 21? | | | | | | | | | | | | | | | | | | | |
| Solve simple equivalent ratio and rate problems | $2 : 3$ so $? : 6$ | | | | | | | | | | | | | | | | | | | |
| Compare fraction sizes with whole numbers | $\frac{37}{7} = 5\frac{2}{7}$ | | | | | | | | | | | | | | | | | | | |

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| KNOWLEDGE | STAGE 7 | Advanced Multiplicative Part-Whole |
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At this stage these are the key pieces of knowledge the children need to learn.

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| Learning Outcomes Knowledge I am learning to... | | | | | | | | | |
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| Sequencing & Ordering | Count forwards and backwards in $\frac{1}{1000}$'s, $\frac{1}{100}$'s, $\frac{1}{10}$'s, 1's, 10's, etc. | 1.2, 1.3, 1.4 6.43, 6.43, 6.41 | | | | | | | | |
| | Say the number $\frac{1}{1000}$, $\frac{1}{100}$, $\frac{1}{10}$, 1, 10, before or after any number | 1.2, 1.3,   6.42, 6.43 | | | | | | | | |
| Fractions | Order decimals to 3.d.p | 0.379, 0.48, 0.8 | | | | | | | | |
| | Order mixed fractions with $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{10}$ | $\frac{2}{10}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{5}{3}$, | | | | | | | | |
| | Know equivalent fractions for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{10}$ with denominators 10,100,1000 | $\frac{1}{4} = \frac{25}{100}$, | | | | | | | | |
| Grouping / PV | Know groupings of 10's, 100's & 1000s in 7 digit nos. | 3 456 789 = 345 678 tens | | | | | | | | |
| | Round whole numbers & decimals to nearest 1 or $\frac{1}{10}$ | 0.47 \rightarrow 0.5 | | | | | | | | |
| Basic Facts | Recall all multiplication and division facts to 10×10 | $8 \times 7 = 56$ $72 \div 9 = 8$ | | | | | | | | |
| | Recall conversions between decimals, fractions & % with $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{10}$ |  $\frac{1}{2}$ 0.5 50% | | | | | | | | |
| | Use divisibility rules for 2,3,5,9,10 | 245 = divisible by 5 as ones is a 5 | | | | | | | | |
| | Know square no's & square roots to 100 | $7^2 = 49$ so $\sqrt{49} = 7$ | | | | | | | | |
| | Identify factors of numbers to 100 | Factors of 35 = 1, 5, 7, 35 | | | | | | | | |
| | Find common multiples of numbers to 10 | Common multiple of 3 & 7 is 21, 42, 63..... | | | | | | | | |

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| STRATEGY | STAGE 7 | Advanced Multiplicative Part-Whole |
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At the Advanced Multiplicative Part-Whole stage the children are learning to.....

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|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Learning Outcomes Strategy I am learning to... | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

ADDITION & SUBTRACTION: broad range of strategies for whole numbers & decimals

| | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Compensation from Tidy Numbers | $3.2 + 1.95 \rightarrow (3.2 + 2) - 0.05$ | | | | | | | | | | | | | | | | | | | |
| Place Value Partitioning | $8.65 + 4.2 \rightarrow 8. + 4 + 0.6 + 0.2 + 0.05$ | | | | | | | | | | | | | | | | | | | |
| Reversibility | $6.03 - 5.8 \rightarrow 5.8 + ? = 6.03$ | | | | | | | | | | | | | | | | | | | |
| Equal Additions: | $7.2 - 3.7 \rightarrow 7.5 - 4 = 3.5$ | | | | | | | | | | | | | | | | | | | |
| Standard written form for + and - | $\begin{array}{r} 7.2 \\ - 3.7 \\ \hline \end{array}$ | | | | | | | | | | | | | | | | | | | |
| Negatives (Integers) | $6.4 - 7.2 = -0.6$ | | | | | | | | | | | | | | | | | | | |
| Simple equivalent fractions | $\frac{3}{4} + \frac{3}{8} = \frac{6}{8} + \frac{3}{8} = \frac{9}{8}$ | | | | | | | | | | | | | | | | | | | |

MULTIPLICATION and DIVISION: broad range of strategies for whole numbers:


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|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Compensation from Tidy Numbers | $19 \times 6 = (20 \times 6) - 6$ $56 \div 4 \rightarrow (60 \div 4) - 1$ | | | | | | | | | | | | | | | | | | | |
| Place Value | $28 \times 7 \rightarrow (20 \times 7) + (8 \times 7)$ $72 \div 4 \rightarrow (40 \div 4) + (32 \div 4)$ | | | | | | | | | | | | | | | | | | | |
| Reversibility | $63 \div 9 = 9 \times ? = 63$ | | | | | | | | | | | | | | | | | | | |
| Proportional Adjustment | $75 \times 4 \rightarrow 25 \times 12$ $81 \div 3 \rightarrow (81 \div 9) \times 3$ | | | | | | | | | | | | | | | | | | | |
| Express remainders as fractions, decimal or whole numbers | $38 \div 6 = 6 \text{ r}2 \text{ or } 6\frac{1}{3} \text{ or } 6.33$ | | | | | | | | | | | | | | | | | | | |
| Standard written forms for X and ÷ | $\begin{array}{r} 476 \\ \times 8 \\ \hline \end{array}$ $6 \overline{)845}$ | | | | | | | | | | | | | | | | | | | |

FRACTIONS, DECIMALS, RATIOS AND PROPORTIONS using: (based on mult'n & div'n)

| | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Unit fractions: | $\frac{5}{8} \times 72 \rightarrow 5 \times (\frac{1}{8} \times 72)$ | | | | | | | | | | | | | | | | | | | |
| Place value: | $3.4 \times 8 \rightarrow (3 \times 8) + (0.4 \times 8)$ | | | | | | | | | | | | | | | | | | | |
| Compensation from tidy numbers: | $2.9 \times 6.3 = (3 \times 6.3) - (0.1 \times 6.3)$ | | | | | | | | | | | | | | | | | | | |
| Equivalent fractions | $40\% \text{ of } 35 = \frac{2}{5} \text{ of } 35$ | | | | | | | | | | | | | | | | | | | |

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| KNOWLEDGE | STAGE 8 | Advanced Proportional Part- Whole |
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At this stage these are the key pieces of knowledge the children need to learn.

| Learning Outcomes Knowledge I am learning to... | | | | | | | | | | |
|---|---|---|--|--|--|--|--|--|--|--|
| Sequencing & Ordering | Count forwards and backwards in $\frac{1}{1000}$'s, $\frac{1}{100}$'s, $\frac{1}{10}$'s, 1's, 10's, etc. | 1.2, 1.3, 1.4 6.43, 6.43, 6.41 | | | | | | | | |
| | Say the number 0.001, 0.01, 0.1, 1, 10 before/after decimal numbers | 6.42, 6.52,  | | | | | | | | |
| | Order fractions, decimals and percentages | 0.4, 50%, $\frac{4}{5}$ | | | | | | | | |
| Grouping / Place Value | Know how many $\frac{1}{10}$'s, $\frac{1}{100}$'s, & $\frac{1}{1000}$'s, are in numbers to 3 d.p. | 1.873 \rightarrow 18 tenths, or 187 hundredths etc. | | | | | | | | |
| | Know what happens when any number is multiplied or divided by a power of ten. | $1.23 \times 100 = 123$ $6.53 \div 10 = 0.653$ | | | | | | | | |
| | Round decimals to the nearest 100, 10, 1, 0.1 or 0.01 | 9.876 \rightarrow 9.88 | | | | | | | | |
| Basic Facts | Recall fraction, decimal & % conversions for commonly used fractions: ($\frac{1}{8}$'s, $\frac{1}{10}$'s, $\frac{1}{20}$'s etc) | $\frac{1}{8} = 0.125 = 12.5\%$ | | | | | | | | |
| | Know simple powers of numbers to 10 | $2^3 = 8$ | | | | | | | | |
| | Use divisibility rules for 2,3,4,5,6,8,9,10 | <i>276 is divisible by 3 because $2 + 7 + 6 = 15$</i> | | | | | | | | |
| | Identify common factors of pairs of numbers to 100 | <i>Highest common factor of 72 & 81 = 9</i> | | | | | | | | |
| | Identify lowest common multiple of pairs of numbers to 10 | <i>The LCM of 6 & 8 = 24</i> | | | | | | | | |
| | Recall prime numbers to 20 | e.g. 1,2, 3, 5, 7.. | | | | | | | | |

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| STRATEGY | STAGE 8 | Advanced Proportional Part- Whole |
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At this stage the children are learning to.....

| Learning Outcomes | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Strategy | | | | | | | | | | | | | | | | | | | |
| I am learning to... | | | | | | | | | | | | | | | | | | | |
| Solve + - x and ÷ problems with fractions and decimals by using: | | | | | | | | | | | | | | | | | | | |
| Conversion between fractions and decimals | $0.75 \times 2.4 \longrightarrow$ $\frac{3}{4} \times 2.4$ | | | | | | | | | | | | | | | | | | |
| Place value | $0.15 \times 3.6 \longrightarrow$ $0.1 \times 3.6) + (0.05 \times 3.6)$ | | | | | | | | | | | | | | | | | | |
| Doubling and halving | $7.2 \div 0.4 \longrightarrow$ $(7.2 \div 0.8) \times 2$ | | | | | | | | | | | | | | | | | | |
| Commutativity | $48 \times 0.125 \longrightarrow$ $0.125 \times 8 = \frac{1}{8} \text{ of } 8$ | | | | | | | | | | | | | | | | | | |
| Multiplying numerators and denominators | $\frac{3}{4} \times \frac{2}{5} \longrightarrow \frac{3 \times 2}{4 \times 5}$ | | | | | | | | | | | | | | | | | | |
| Converting to common denominators | $\frac{3}{5} + \frac{2}{7} = \frac{21}{35} + \frac{10}{35}$ $\longrightarrow \frac{31}{35}$ | | | | | | | | | | | | | | | | | | |
| Use written forms for: Add'n & sub'n of <i>whole nos</i> & <i>decimals to 3dp</i> Mult'n & div'n of <i>whole nos</i> & <i>decimals x single digit</i> Mult'n of <i>4 digit x 2 digit whole no's</i> | 3.567 $+ 0.063$ | | | | | | | | | | | | | | | | | | |
| | 6.45 $\times 3 \quad 5)4.83$ | | | | | | | | | | | | | | | | | | |
| | 6735 $\times 85$ | | | | | | | | | | | | | | | | | | |
| Find fractions, decimals & percentages of given amounts | $65\% \text{ of } 24 \longrightarrow$ $50\% \text{ of } 24 = 12, 10\% \text{ of } 24 = 2.4$ $5\% \text{ of } 24 = 1.2$ $\text{so } 65\% = 12 + 2.4 + 1.2$ $28 \text{ out of } 42 = ?\% \longrightarrow$ $\frac{28}{42} = \frac{4}{6} = \frac{2}{3} = 66.6\%$ | | | | | | | | | | | | | | | | | | |
| Solve problems with ratios, rates and proportions by: | | | | | | | | | | | | | | | | | | | |
| Finding equivalent ratios with a common factor or multiplier | $21 : 28 \text{ as } ? : 8 \longrightarrow$ $21 : 28 = 3 : 4 \text{ so } 6 : 8$ | | | | | | | | | | | | | | | | | | |
| | $3:5 = ? : ? \text{ out of } 96 \longrightarrow$ $\text{As } 3:5 \text{ is } \frac{3}{8}, \frac{3}{8} \text{ of } 96 = 36,$ $\text{so the proportion is } 36 : 60$ \longrightarrow | | | | | | | | | | | | | | | | | | |