A guide for teachers/families

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## What is a calculation policy?

This calculation guidance helps teachers to identify the preferred methods of mental and written calculations for our school, based on White Rose methodology. This guidance contains the key procedures that will be taught within our school.

## Why do we need this?


 to everyday situations and wherever possible teachers should use real life context when teaching calculation, including the use of estimations.

The consistent use of colours for place value counters will be used across school to ensure continuity and conceptual understanding.


## How to use this guidance?

The guidance is into year group sections; addition and subtraction, multiplication and division. National age expectations are highlighted to show the stages children are expected to reach by the end of the year group (National Curriculum 2014). High expectations will result in above average progression over KS2. When planning for a class it will be necessary to look at the year below to reinforce previous strategies taught..

## Range of strategies to be included in all year groups

The calculation policy shows the range of strategies that the children will be introduced to however do not necessarily need to be taught in the order shown.
Establish mental methods based on a good understanding of place value
Use concrete objects to support calculations
Use of informal jottings to aid mental calculations
Develop use of empty number line to help mental imagery and aid recording
Use models and images to promote understanding.
Use partitioning and recombining to aid informal methods
Use inverses to check calculations
Introduce expanded methods
Develop expanded methods into compact standard written form
Children will be encouraged to then select an appropriate method to solve problems. (Do I need to use an expanded or compact written method?)

Before formal written methods can be used it is necessary for the children to have a secure understanding of place value appropriate for the year group

Before carrying out a calculation, children will be encouraged to consider some or all of the following points dependent on their current year group

> What size do I expect the answer to be?

Can I calculate in my head?
Could I use jottings to keep track of the calculation?

## Vocabulary

Misconceptions will occur, and need to be rectified quickly. It is necessary to use clear, unambiguous language to minimise misconceptions, and this should be consistent across the whole school. Teachers can use the common misconceptions identified in White Rose schemes of learning to plan for addressing misconceptions within their teaching. For example:

When using column methods for subtraction the children should be told to 'exchange' a ten for units, or a hundred for tens, not to 'borrow' a ten or a hundred.
When teaching multiplication / division by 10, 100 etc., the figures move, not the decimal point. The decimal point always resides between the ones and the tenths!
When multiplying an integer by 10 we do not ADD a 0 . Adding implies addition and the addition of a number and zero means the original number remains unchanged.

Please note all National Curriculum information:

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## Addition

| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Add two 1-digit <br> numbers to 10 | 1 | Part-whole model <br> Bar model <br> Number shapes | Ten frames (within 10) <br> Bead strings (10) <br> Number tracks |
| Add 1 and 2-digit <br> numbers to 20 | 1 | Part-whole model <br> Bar model <br> Number shapes <br> Ten frames (within 20) | Bead strings (20) <br> Number tracks <br> Number lines (labelled) <br> Straws |
| Add three 1-digit <br> numbers | 2 | Part-whole model <br> Bar model | Ten frames (within 20) <br> Number shapes |
| Add 1 and 2-digit <br> numbers to 100 | 2 | Part-whole model <br> Bar model <br> Number lines (labelled) | Number lines (blank) <br> Straws |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Add two 2-digit <br> numbers | 2 | Part-whole model <br> Bar model <br> Number lines (blank) <br> Straws | Blase value counters |
| Add with up to 3-digits | 3 | Part-whole model <br> Bar model | Base 10 <br> Place value counters <br> Column addition |
| Add with up to 4-digits | 4 | Part-whole model <br> Bar model | Base 10 <br> Place value counters <br> Column addition |
| Add with more than 4 <br> digits | 5 | Part-whole model <br> Bar model | Place value counters <br> Column addition |
| Add with up to 3 <br> decimal places | 5 | Part-whole model <br> Bar model | Place value counters <br> Column addition |


|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Combining two parts to make a whole part: part -whole model | Use cubes to add two numbers together as a group or in a bar (use other resources too e.g. eggs, shells, teddy bears, cars) <br> Use part whole model. | Use pictures to add two numbers together as a group or in a bar to represent the concrete tool | Use the part-part whole diagram as shown above to move into the abstract. $\begin{aligned} & 5+3=8 \\ & 8=5+3 \end{aligned}$  $4+3=7$ <br> Four is a part, 3 is a part and the whole is seven. |
|  | Starting at the bigger number and counting on | Start with the larger number and then count on to the smaller number 1 by 1 | Start at the larger number on the number line and count on in ones or in one jump to find the answer. $12+5=17$ | Place the larger number in your head and count on the smaller number to find your $5+12=17$ <br> What is 5 more than 12 ? <br> What is the sum of 5 ? <br> What is the total of 5 and 12 ? |


|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Regrouping to make 10 <br> This is an essential skill for column addition later. | Start with the bigger number and use the smaller number to make 10. Use ten frames. | Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10 <br> Children to draw the ten frame and counters/cubes. | $7+4=11$ <br> If I am at seven, how many more do I need to make 10. How many more do I add on $\begin{aligned} & 6+\square=11 \\ & 6+5=5+\square \\ & 6+5=\square+4 \end{aligned}$ |
|  | Represent and use number bonds and related subtraction facts | 2 more than 5 |  | Emphasis should be on the language <br> ' 1 more than 5 is equal to 6 .' ' 2 more than 5 is 7.' <br> ' 8 is 3 more than 5.' |


|  | Objective／ Strategy | Concrete－Tool | Pictorial－Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Adding multiples of 10 | Model using Dienes and bead strings $50=30+20$ | Use representations for base ten <br> 3 tens +5 tens＝ $\qquad$ tens $30+60=$ | $\begin{aligned} & 20+30=50 \\ & 70=50+20 \end{aligned}$ |
|  | Use known number facts Part part whole | Children explore ways of making numbers within 20 | $\begin{gathered} \text { 20 } \\ \square+\square=20 \quad 20-\square=\square \\ \square+\square=20 \quad 20-\square=\square \end{gathered}$ | $\begin{array}{ll} \square+1=16 & 16-1=\square \\ 1+\square=16 & 16-\square=1 \end{array}$ |
|  | Using known facts | Children draw representations of $\mathrm{H}, \mathrm{T}$ and O | Children draw representations of H，T and O | $3+4=7$ <br> Leads to $30+40=70$ <br> Leads to $300+400=700$ |



|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Add two digit and one digit add two 2digit numbers with an exchange | Use of straws | Draw a number line | $38+23=61$ |
|  | Add three 1-digit numbers | Combine to make 10 first if possible, or bridge 10 then add third digit | Regroup and draw Representation <br>  <br>  | Combine the two numbers that make/bridge ten then add on the third $\begin{aligned} \frac{4+7+6}{10} & =10+7 \\ & =17 \end{aligned}$ |
|  | Bar model | $3+4=7$ | $7+3=10$ | 23 25 <br> $?$ $23+25=48$ |





## Subtraction

| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Subtract two 1-digit <br> numbers to 10 | 1 | Part-whole model <br> Bar model <br> Number shapes | Ten frames (within 10) <br> Bead strings (10) <br> Number tracks |
| Subtract 1 and 2-digit <br> numbers to 20 | 1 | Part-whole model <br> Bar model <br> Number shapes <br> Ten frames (within 20) | Bead string (20) <br> Number tracks |
| Subtract 1 and 2-digit <br> numbers to 100 | 2 | Part-whole model <br> Bar model <br> Number (labelled) |  |
| Substraws (labelled) | Number lines (blank) | Straws |  |
| numbers two 2-digit |  |  |  |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Subtract with up to 3- <br> digits | 3 | Part-whole model <br> Bar model | Place value counters <br> Column subtraction |
| Subtract with up to 4- <br> digits | 4 | Part-whole model <br> Bar model | Base 10 <br> Place value counters <br> Column subtraction |
| Subtract with more than <br> 4 digits | 5 | Part-whole model <br> Bar model | Place value counters <br> Column subtraction |
| Subtract with up to 3 <br> decimal places | 5 | Part-whole model <br> Bar model | Place value counters <br> Column subtraction |





| I | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Column subtraction without regrouping | Use Dienes or Numicon to model <br> Work out 63-51 | Draw representations to support understanding <br> Work out 769-147 | No exchanges $\begin{array}{r} 98 \\ -\quad 3 \quad 5 \\ \hline 63 \end{array}$ |
|  | Column subtraction with regrouping | Begin with Dienes or Numicon. Move to place value counters, modelling the exchange of a ten into ones. Use the phrase 'take and make' for exchange <br> ] $\begin{aligned} & \text { oo }_{0}=16 \\ & \text { io }_{0}=16\end{aligned}$ | Children may draw bars, part part wholes or place value counters and cross off <br> 435 <br> 273 <br> ? | Extend to one exchange $\begin{array}{r} { }^{6} 7{ }^{1} 2 \\ -\quad 4 \quad 7 \\ \hline 2 \quad 5 \\ \hline \end{array}$ |


| 1 | Objective / Strategy | Concrete - Tool |  |  |  | Pict | torial | Pict |  | Abstract |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Y4 <br> Subtract with up to 4 digits <br> Introduce decimal subtraction through context of money | Model process of exchange using Numicon, Dienes and then move |  |  |  | Represent the base 10 pictorially, remembering to show the exchange |  |  |  | Formal column method. Children must understand what has happened when they have crossed out digits using the term exchange. Up to 3 exchanges |
| \% | Y5 <br> Subtract with at least 4 digits, including money and measures Subtract with decimal values | As Year 4 |  |  |  | Represent rememberi change | the ba ing to | e 10 show , $\qquad$ | pictorially, <br> he ex- | Use zeros for place-holders $\begin{array}{r} 6232 \\ -4814 \\ \hline 1418 \\ \hline \quad 77^{10} \times 69 \cdot 0 \\ -\quad 372 \cdot 5 \\ \hline 6796 \cdot 5 \end{array}$ |
| 2 | Y6 <br> Subtract with large and more complex numbers and decimal values |  |  |  |  | Bar models |  | nort | earning |  |

Multiplication

| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Solve one-step <br> problems with <br> multiplication | $1 / 2$ | Bar model <br> Number shapes <br> Counters | Ten frames <br> Bead strings <br> Number lines |
| Multiply 2-digit by 1- <br> digit numbers | $3 / 4$ | Place value counters <br> Base 10 | Expanded written method <br> Short written method |
| Multiply 3-digit by 1- <br> digit numbers | 4 | Place value counters <br> Base 10 | Short written method |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Multiply 2-digit by 2- <br> digit numbers | 5 | Place value counters <br> Base 10 | Short written method <br> Grid method |
| Multiply 2-digit by 3- <br> digit numbers | 5 | Place value counters | Short written method <br> Grid method |
| Multiply 2-digit by 4- <br> digit numbers | $5 / 6$ | Formal written method |  |


|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Doubling | Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling | Draw pictures to show how to double numbers <br> Double $4=8$ |  |
|  | Counting in multiples | Count the groups as children are skip counting, children may use their fingers as they are skip counting | Children make representations to show counting in multiples <br> -00000-00000-00000-00000- $\qquad$ | Count in multiples of a number aloud <br> Write sequences with multiples of numbers. $2,4,6,8,10$ $5,10,15,20,25,30$ |
|  | Making equal groups and counting the total | Use manipulatives to create equal groups | Draw and make representations | $4 \times 5=20$ |



|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Doubling | Model doubling using Dienes and place value counters | Draw pictures and representations to show how to double numbers | Partition a number and then double each part before recombining it back together |
| $\left\|\begin{array}{c} 0 \\ 5 \\ 3 \\ 3 \\ 3 \\ 3 \end{array}\right\|$ | Counting in multiples of $2,3,4,5,10$ from 0 <br> Repeated addition | Count the groups as children are skip counting, children may use their fingers as they are skip counting $5+5+5+5+5+5+5+5=40$ | Number lines, counting sticks and bar models should be used to show representation of counting in multiples | Count in multiples of a number aloud <br> Write sequences with multiples of numbers $\begin{aligned} & 0,2,4,6,8,10 \\ & 0,3,6,9,12,15 \\ & 0,5,10,15,20,25,30 \end{aligned}$ $4 \times 3=$ $\square$ |


|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Multiplication is commutative | Create arrays using counters and cubes and Numicon <br> 2 lots of 5 <br> 5 lots of 2 Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer | Use representations of arrays to show different calculations and explore commutativity | $\begin{aligned} & 12=3 \times 4 \\ & 12=4 \times 3 \end{aligned}$ <br> Use an array to write multiplication sentences and reinforce repeated addition. $\begin{aligned} & 5+5+5=15 \\ & 3+3+3+3+3=15 \\ & 5 \times 3=15 \\ & 3 \times 5=15 \end{aligned}$ |
| $8$ | Using the Inverse This should be taught alongside division, so pupils learn how they work alongside each other | Use cubes to show multiplication and division fact families |  | Show all 8 related fact families $\begin{array}{ll} 2 \times 4=8 & 2=8 \div 4 \\ 4 \times 2=8 & 4=8 \div 2 \\ 8=2 \times 4 & 8 \div 4=2 \\ 8=4 \times 2 & 8 \div 2=4 \end{array}$ |







## Division

| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Solve one-step <br> problems with division <br> (sharing) | $1 / 2$ | Bar model <br> Real life objects | Arrays <br> Counters |
| Solve one-step <br> problems with division <br> (grouping) | $1 / 2$ | Real life objects <br> Number shapes <br> Bead strings <br> Ten frames | Number lines |
| Arrays |  |  |  |
| Counters |  |  |  |
| Divide 2-digits by 1- <br> digit (no exchange <br> sharing) | 3 | Straws <br> Base 10 <br> Bar model | Place value counters |
| Divide 2-digits by 1- <br> digit (sharing with <br> exchange) | 3 | Straws <br> Base 10 <br> Bar model | Place value counters |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Divide 2-digits by 1- <br> digit (sharing with <br> remainders) | $3 / 4$ | Straws <br> Base 10 <br> Bar model | Place value counters <br> Part-whole model |
| Divide 2-digits by 1- <br> digit (grouping) | $4 / 5$ | Place value counters <br> Counters | Place value grid <br> Written short division |
| Divide 3-digits by 1- <br> digit (sharing with <br> exchange) | 4 | Base 10 <br> Bar model | Place value counters <br> Part-whole model |
| Divide 3-digits by 1- <br> digit (grouping) | $4 / 5$ | Place value counters <br> Counters | Place value grid <br> Written short division |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Divide 4-digits by 1- <br> digit (grouping) | 5 | Place value counters <br> Counters | Place value grid <br> Written short division |
| Divide multi-digits by <br> 2-digits (short <br> division) | 6 | Written short division | List of multiples |
| Divide multi-digits by <br> 2-digits (long division) | 6 | Written long division | List of multiples |


|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Division as sharing | Sharing using a range of objects <br> I have 10 cubes, can you share them equally between 2 ? | Children use pictures or shapes to share quantities <br> 8 shared between 2 is 4 <br> 12 shored between 3 is 4 | 12 shared between 2 is 6 |
| $18$ | Division as grouping | Divide quantities into equal groups <br> Use objects from real life experiences to group e.g. wheels on Lego cars, socks into pairs | Circle groups of 2 mittens and complete the sentence. $B B B O$ <br> BQBQ <br> There are $\qquad$ groups of 2 mittens |  |



|  | Objective / Strategy | Concrete - Tool | Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: | :---: |
|  | Division as grouping | Use cubes, counters, objects or place value counters to aid understanding <br> There are 20 apples altogether. They are put in bags of 5 . How many bags are there? | Children to use pictures or shapes to group quantities <br> Bar Model <br> 20 $\begin{aligned} & 20+5=7 \\ & 5 \mathrm{n}+20 \end{aligned}$ | How many groups of 6 in 24 ? $24 \div 6=4$ |
|  | Division with arrays | Link division to multiplication by creating an array and thinking about the number sentences that can be created $\begin{array}{ll} 5 \div 3=5 & 5 \times 3=15 \\ 15 \div 5=3 & 3 \times 5=15 \end{array}$ | Draw an array and use lines to split the array into groups to make multiplication and division sentences | Find the inverse of multiplication and division sentences by creating eight linking number sentences $\begin{array}{ll} 7 \times 4=28 & 4 \times 7=28 \\ 28 \div 7=4 & 28 \div 4=7 \\ 28=7 \times 4 & 28=4 \times 7 \\ 4=28 \div 7 & 7=28 \div 4 \end{array}$ |




|  | Objective / Strategy | Concrete - Tool Pictorial - Picture | Abstract |
| :---: | :---: | :---: | :---: |
|  | Division with remainders | Divide objects by sharing between 3 and see how much is left over. <br> Divide objects by grouping and seeing how much is left over. <br> Example without remainder: $40 \div 5$ <br> Ask "How many $5 s$ in 40 ? <br> Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder <br> Draw dots and group them to divide an amount and clearly show a remainder. Could be either $14 \div 3=$ (grouping) or $14 \div 4=$ (sharing). <br> Example with remainder: $38 \div 6$ <br> For larger numbers, when it becomes inefficient to count in single jumps can be recorded using known facts. | Complete written divisions and show the remainder using $r$$26 \div 3=8 \text { r } 2$800 0000000 <br> 0 0000 <br> 0 000 <br> 0 000 <br> 0 000 <br> 0 000 <br> fives <br> th a remainder of 2 <br> multiples, bigger |





|  | Objective / Strategy | Pictorial - Abstract |
| :---: | :---: | :---: |
| $\bullet 10$ | Long division | Division using repeated subtraction- removing chunks |
|  |  | $26 \begin{array}{rrr} 1 & 3 & \\ 3 & 4 & 3 \\ -2 & 6 & 0 \end{array} \quad \times 100$ |




## Times Tables

| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Recall and use <br> multiplication and <br> division facts for the <br> 2-times table | 2 | Bar model <br> Number shapes <br> Counters <br> Money | Ten frames <br> Bead strings <br> Number lines <br> Everyday objects |
| Recall and use <br> multiplication and <br> division facts for the <br> 5-times table | 2 | Bar model <br> Number shapes <br> Counters <br> Money | Ten frames <br> Bead strings |
| Recall and use <br> multiplication and <br> division facts for the <br> 10-times table | 2 | Hundred square <br> Number shapes <br> Counters | Ten frames <br> Money |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Recall and use <br> multiplication and <br> division facts for the <br> 3-times table | 3 | Hundred square <br> Number shapes <br> Counters | Bead strings <br> Number lines <br> Everyday objects |
| Recall and use <br> multiplication and <br> division facts for the <br> 4-times table | 3 | Hundred square <br> Number shapes <br> Counters | Bead strings <br> Number lines <br> Everyday objects |
| Recall and use <br> multiplication and <br> division facts for the <br> 8-times table | 3 | Hundred square <br> Number shapes | Bead strings <br> Number tracks |
| Recall and use <br> multiplication and <br> division facts for the <br> 6-times table | 4 | Hundred square <br> Number shapes | Bead strings <br> Number tracks |


| Skill | Year | Representations and models |  |
| :---: | :---: | :---: | :---: |
| Recall and use <br> multiplication and <br> division facts for the <br> 7-times table | 4 | Hundred square <br> Number shapes | Bead strings <br> Number lines |
| Recall and use <br> multiplication and <br> division facts for the <br> 9-times table | 4 | Hundred square <br> Number shapes | Bead strings |
| Recall and use <br> multiplication and <br> division facts for the <br> 11-times table | 4 | Number lines |  |


| Skill: 2 times table | Year: 2 |
| :---: | :---: |
|  | Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. <br> Look for patterns in the two times table, using concrete manipulatives to support. Notice how all the numbers are even and there is a pattern in the ones. <br> Use different models to develop fluency. |



| Skill: 10 times table |  |  |  |  |  |  |  |  |  | Year: 2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | 1 <br> 30 |  | $\begin{array}{\|l\|} \hline \\ 50 \\ \hline 000 \\ \hline 200 \\ \hline \end{array}$ |  |  | 00 <br> S <br> 10 <br> 8 <br> 18 <br> 28 <br> 38 <br> 48 <br> 58 <br> 68 <br> 78 <br> 88 <br> 98 |  | Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. <br> Look for patterns in the ten times table, using concrete manipulatives to support. Notice the pattern in the digitsthe ones are always 0 , and the tens increase by 1 ten each time. |




| Skill: 8 times table |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Year: 3 <br> Encourage daily counting in multiples, supported by a number line or a hundred square. Look for patterns in the eight times table, using manipulatives to support. Make links to the 4 times table, seeing how each multiple is double the fours. Notice the pattern in the ones within each group of five multiples. Highlight that all the multiples are even using number shapes to support. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |  |  | 10 |  |
| 0009000009000909 |  |  |  |  | 11 | 12 | 13 | 14 | 15 | (1) | 17 | 18 | 19 | 20 |  |
|  |  |  |  |  | 21 | 22 | 23 | (24) | 25 | 26 | 27 | 28 | 29 | 30 |  |
|  |  |  |  |  | 31 | (3) | 33 | 34 | 35 | 36 | 37 | 38 | 39 | (40) |  |
|  |  |  |  |  | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |  |
|  |  |  |  |  | 51 | 52 | 53 | 54 | 55 | (5) | 57 | 58 | 59 | 60 |  |
|  |  |  |  |  | 61 | 62 | 63 | (6) | 65 | 66 | 67 | 68 | 69 | 70 |  |
|  |  |  |  |  | 71 | (2) | 73 | 74 | 75 | 76 | 77 | 78 |  | 8 |  |
|  |  |  |  |  | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |  |
| 8 | 16 | 24 | 32 | 40 | 9 | 9293 |  | 9394 | 495 | 96 | $97 \mid 9$ |  | 991 | 100 |  |
| 48 | 56 | 64 | 72 | 80 |  |  |  |  |  |  |  |  |  |  |  |
| -00000000-00000000-00000000- |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


| Skill: 6 times table |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Year: 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | 4 |  | 6 | 7 |  |  | 10 | Encourage daily counting in multiples, supported by a number line or a hundred square. Look for patterns in the six times table, using manipulatives to support. Make links to the 3 times table, seeing how each multiple is double the threes. Notice the pattern in the ones within each group of five multiples. Highlight that all the multiples are even using number shapes to support. |
|  |  |  |  |  | 11 | (12) | 13 | 14 | 15 | 16 | 17 | (1) | 19 | 20 |  |
|  |  |  |  |  | 21 | 22 | 23 | (24) | 25 | 26 | 27 | 28 | 29 | (3) |  |
|  |  |  |  |  | 31 | 32 | 33 | 34 | 35 | (3) | 37 | 38 | 39 | 40 |  |
|  |  |  |  |  |  | (4) | 43 | 44 | 45 | 46 | 47 | (48) | 49 | 50 |  |
|  |  |  |  |  | 51 | 52 | 53 | (54) | 55 | 56 | 57 | 58 | 59 |  |  |
| 6 | 12 | 18 | 24 | 30 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |  |
| 36 | 42 | 48 | 54 | 60 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |  |
|  |  |  |  |  | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |  |
| 66 | 72 | 78 | 84 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


| Skill: 9 times table |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Year: 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $0000000000000$ |  |  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |  | 10 | Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the nine times table, using concrete manipulatives to support. Notice the pattern in the tens and ones using the hundred square to support as well as noting the odd, even pattern within the multiples. |
|  |  |  |  |  | 11 | 12 | 13 | 14 | 15 | 16 | 17 | (18) |  | 20 |  |
|  |  |  |  |  | 21 | 22 | 23 | 24 | 25 | 26 | (2) | 28 | 29 | 30 |  |
|  |  |  |  |  | 31 | 32 | 33 | 34 | 35 | (3) | 37 | 38 | 39 | 40 |  |
|  |  |  |  |  | 41 | 42 | 43 | 44 | (4) | 46 | 47 | 48 | 49 | 50 |  |
| 9 | 18 | 27 | 36 | 45 | 51 | 52 | 53 | (54) | 55 | 56 | 57 | 58 | 59 | 60 |  |
| 54 | 63 | 72 | 81 | 90 | 61 | 62 | (3) | 64 | 65 | 66 | 67 | 68 | 69 | 70 |  |
| 71 72 73 74 75 76 77 78 79 80 <br> 81 82 83 84 85 86 87 88 89 90 <br> 91 92 93 94 95 96 97 98 99 100 <br> -000000000-000000000-000000000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Skill: 11 times table |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Year: 4 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 22 | 33 | 44 | 55 | 66 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Encourage daily counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. <br> Look for patterns in the eleven times table, using concrete manipulatives to support. Notice the pattern in the tens and ones using the hundred square to support. Also consider the pattern after crossing 100 |
|  |  |  |  |  |  | 111 |  | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |  |
| 77 | 88 | 99 | 110 | 121 | 13 | 21 | (22) | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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