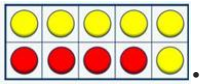
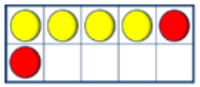
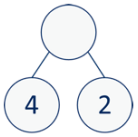
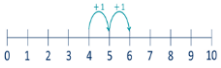
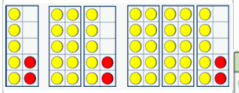
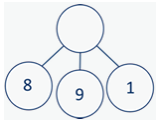
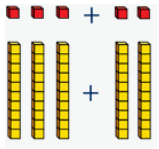
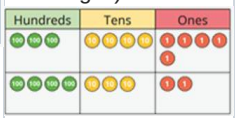
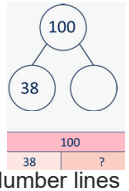
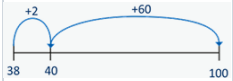
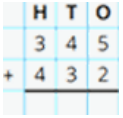
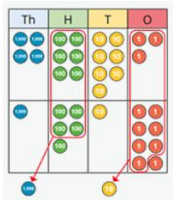
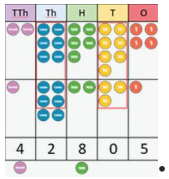
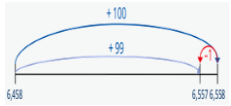
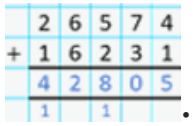
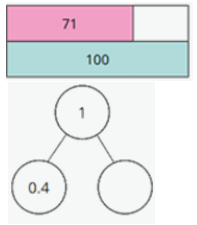
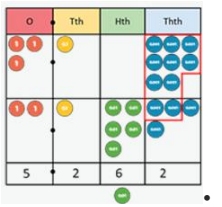
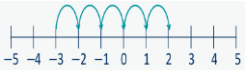
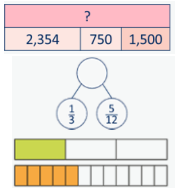
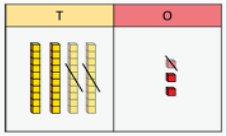
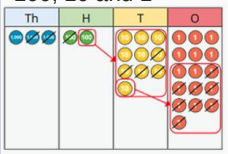
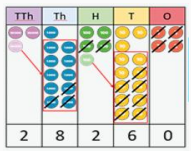
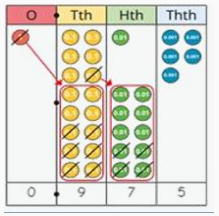
Wolsey House Primary School

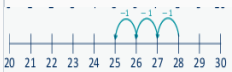
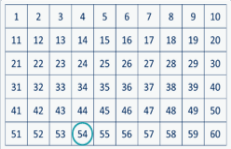
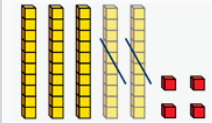
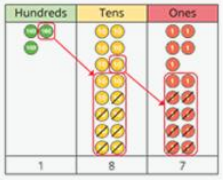
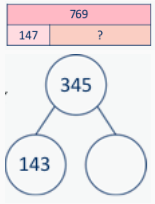
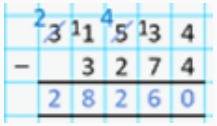
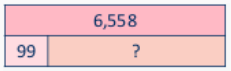
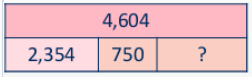
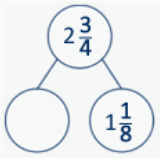
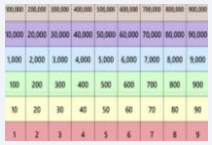
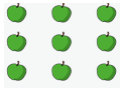
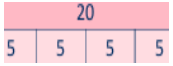
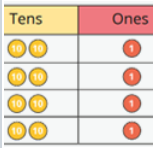
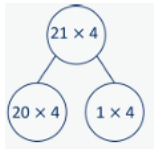
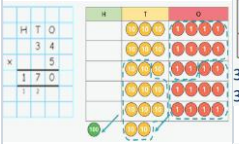
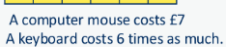
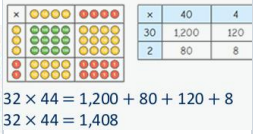
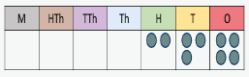
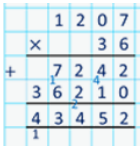
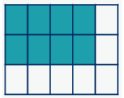
Calculation Policy

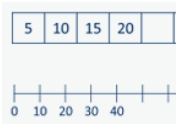
Introduction

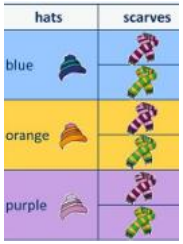
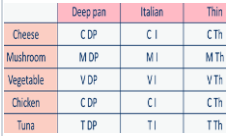
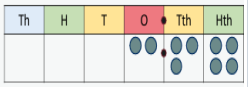
> This calculation policy supports the White Rose Maths scheme which provides a structured, mastery-led sequence of learning from the Early Years through to Upper Key Stage 2. White Rose supports our policy through consistent use of concrete, pictorial and abstract (CPA) approaches, enabling children to build understanding step by step. Across the school, children engage with concrete materials, pictorial representations and abstract written methods, moving flexibly between them in any order that best supports their understanding. We also use ICT games to model calculations using place value charts with counters, helping pupils visualise number structure and strengthen their understanding of place value.

Progression Across Key Stages

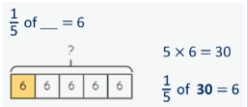
Operation	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	• Number bonds using five and ten frames  • Finding 1 more or 1 less using number lines  • Part whole model • Manipulatives used consistently for all learning	• Ten frames  • Part-whole model to understand how numbers can be split and combined  • Number lines  • First, then, now stories to help represent addition in real-life contexts 	• Ten frames  • Part-whole models to help break numbers into manageable parts  • Number lines  • First, then now stories • Base 10 	• Place value charts using counters (up to 3 digits)  • Part whole models and bar models to represent calculations and identify relationships  • Number lines  • Formal written methods supported by concrete and pictorial representation 	• Place value charts using counters (up to 4 digits)  • Formal written method supported by concrete resources and visual representations 	• Place value charts using counters  Number lines  • Formal written method  Part whole models bar models as visual representations 	• Place value charts with counters  Number lines  • Formal written method  • A variety of visual representations such as, part whole models and bar models 
Subtraction	• Number lines to support counting back and help to visualise the process of taking away 	• Number lines to support counting back and understand subtraction as the difference or taking away	• Place value charts using tens and ones 	• Place value charts with counters representing 100, 10 and 1 to understand exchanges and structure of larger numbers	• Place value charts using counters to represent 1000, 100, 10 and 1 	• Place value charts to understand exchange and decimals 	• Place value charts 

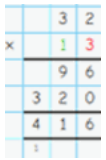
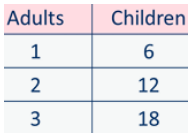
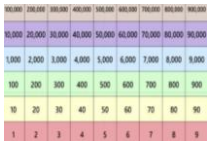
	• A wide range of manipulatives for children to physically remove objects	 • First, then, now stories to place subtraction within real-life contexts 	• Number lines  • 100s square to recognise patterns and count back in steps  • Base 10  • Ten frames 	 • Bar models • Part-whole models to represent subtraction problems visually  • Introduce formal written method with concrete and visual  models	• Formal written method with concrete and pictorial representations  • Number lines 	• Formal written method  • Bar models and part-whole models as visual representations 	• Applying formal written method to multi-step problems • Bar models and part-whole models as visual representations  
Multiplication Gattengo charts for multiplying by factors of 10. 	• Concrete equal groups  • Pictures in equal groups 	• Equal groups (repeated addition)  • Make arrays  • Number lines	• Use arrays  • Bar models  • Number lines 	• Place value counters  • Part-whole model 	• Place value counters  • Scaling 	• Area model  • Place value chart 	• Long multiplication  • Fraction area model  $\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}$

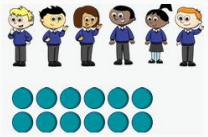
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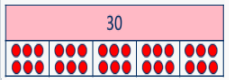
• Correspondence problems

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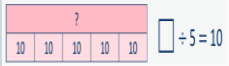
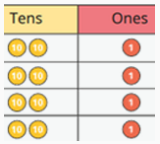


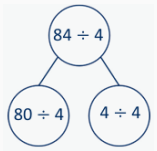
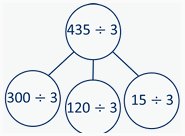
• Fraction bar model


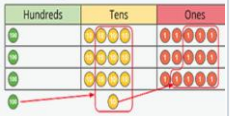
• Formal written method
</td>
<td>• Ratio table

</td>
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<tr>
<td>Division
Gattengo charts for dividing by factors of 10.
</td>
<td>• Sharing

• Grouping
</td>
<td>• Equal groups

• Sharing
</td>
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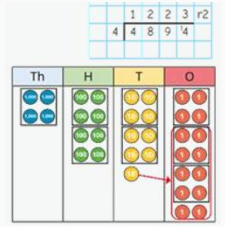
• Sharing


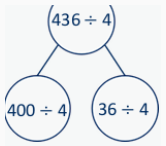
• Missing numbers bar model

</td>
<td>• Place value counters


• Part-whole model

</td>
<td>• Part-whole model


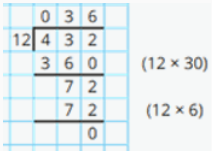
• Place value counters


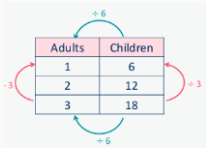
• Place value chart

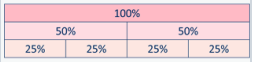

12 ÷ 10 = 1.2</td>
<td>• Place value counters


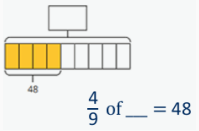
• Part-whole model


• Place value chart

</td>
<td>• Long division


• Ratio table


• Percentage bar model


• Fraction bar model

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