

Multiplication and Division

Selected National Curriculum Programme of Study Statements

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

The Big Ideas

It is important that pupils both commit multiplication facts to memory and also develop an understanding of conceptual relationships. This will aid them in using known facts to work out unknown facts and in solving problems.



Pupils should look for and recognise patterns within tables and connections between them (e.g. $5 \times$ is half of $10 \times$).

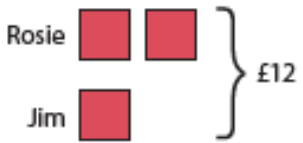
Pupils should recognise multiplication and division as inverse operations and use this knowledge to solve problems. They should also recognise division as both grouping and sharing.

The recognition of pattern in multiplication helps pupils commit facts to memory, for example doubling twice is the same as multiplying by four, or halving a multiple of ten gives you the related multiple of five.

Mastery Check

Please note that the following columns provide indicative examples of the sorts of tasks and questions that provide evidence for mastery and mastery with greater depth of the selected programme of study statements. Pupils may be able to carry out certain procedures and answer questions like the ones outlined, but the teacher will need to check that pupils really understand the idea by asking questions such as 'Why?', 'What happens if ...?', and checking that pupils can use the procedures or skills to solve a variety of problems.

Mastery	Mastery with Greater Depth
<p>What is 5×4? (5 times table) What is 10×6? (10 times table)</p> <p><i>Being able to answer such questions is, of course, important, but check pupils understand the meaning of them. For example, ask them to make 5×4 and 10×6 using concrete apparatus.</i></p>	<p>Which has the most biscuits: 4 packets of biscuits with 5 in each packet, or 3 packets of biscuits with 10 in each packet?</p> <p>Explain your reasoning.</p>
<p>Write these addition sentences as multiplication sentences. The first one has been completed.</p> <p>$5 + 5 + 5 + 5 + 5 = 5 \times 5$ $2 + 2 + 2 + 2 + 2 =$ $2 + 2 + 2 =$ $10 + 10 + 10 + 10 =$</p>	<p>Write these addition sentences as multiplication sentences.</p> <p>$10 + 10 + 10 + 5 + 5 =$ $2 + 2 + 2 + 4 =$ $2 + 2 + 4 + 4 =$ $5 + 5 + 5 + 2 + 3 =$</p>
<p>This array represents $5 \times 3 = 15$.</p>  <p>Write three other multiplication or addition facts that this array shows. Write one division fact that this array shows.</p>	<p>Find different ways to find the answer to 12×4.</p>  <p><i>Children are expected to use their 2, 5 and 10 times tables to answer this question.</i></p>

Mastery	Mastery with Greater Depth
<p>Complete and compare the 5 and 10 times tables. What do you notice?</p> <p> $5 \times 1 =$ $10 \times 1 =$ $5 \times 2 =$ $10 \times 2 =$ $5 \times 3 =$ $10 \times 3 =$ $5 \times 4 =$ $10 \times 4 =$ </p>	<p>True or false?</p> <p> $5 \times 4 = 4 \times 5$ $5 \times 4 = 10 \times 2$ $5 \times 4 = 2 \times 10$ </p> <p>Explain your reasoning.</p> <p>What do you notice?</p>
<p>Sally buys 3 cinema tickets costing £5 each. How much does she spend? Write the multiplication number sentence and calculate the cost.</p> <p>If Sally paid with a £20 note, how much change would she get?</p>	<p>Together Rosie and Jim have £12. Rosie has twice as much as Jim. How much does Jim have? <i>The bar model can be helpful in solving these types of problems.</i></p>  <p> $12 \div 3 = 4$ Jim has £4 </p>
<p>Two friends share 12 sweets equally between them. How many do they each get? Write this as a division number sentence.</p> <p>Make up two more sharing stories like this one.</p> <p>Chocolate biscuits come in packs (groups) of 5. Sally wants to buy 20 biscuits in total. How many packs will she need to buy? Write this as a division number sentence.</p> <p>Make up two more grouping stories like this one.</p>	<p>Two friends want to buy some marbles and then share them out equally between them. They could buy a bag of 13 marbles, a bag of 14 marbles or a bag of 19 marbles. What size bag should they buy so that they can share them equally?</p> <p>What other numbers of marbles could be shared equally?</p> <p>Explain your reasoning.</p>

