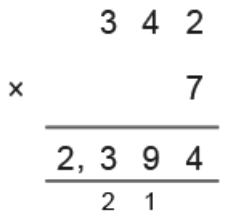
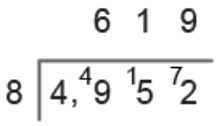
5NF–1 Secure fluency in multiplication and division facts

Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.

5NF–1 Teaching guidance

Before pupils begin work on formal multiplication and division (5MD–3 and 5MD–4), it is essential that pupils have automatic recall of multiplication and division facts within the multiplication tables. These facts are required for calculation within the 'columns' during application of formal written methods. All mental multiplicative calculation also depends on these facts.

Identifying core number facts: short multiplication	Identifying core number facts: short division
 **Figure 170: short multiplication of 342 by 7**	 **Figure 171: short division of 4,952 by 8**
Within-column calculations: 7 × 2 = 14 7 × 4 + 1 = 28 + 1 7 × 3 + 2 = 21 + 2	Within-column calculations: 4 ÷ 8 = 0 r 4 49 ÷ 8 = 6 r 1 15 ÷ 8 = 1 r 7 72 ÷ 8 = 9

Pupils should already have automatic recall of multiplication table facts and corresponding division facts, from year 3 (5, 10, 2, 4 and 8 multiplication tables, 3NF–2) and year 4 (all multiplication tables up to and including 12, 4NF–1). Pupils' fluency in multiplication facts is assessed in the summer term of year 4 in the statutory multiplication tables check, and this will identify some pupils who need additional practice. However, even pupils who were fluent in the multiplication tables at the time of the multiplication tables check will benefit from further practice to maintain and secure fluency. Pupils must also be able to fluently derive related division facts, including division facts with remainders before they begin to learn formal written methods for multiplication and division (5MD–3 and 5MD–4).

The multiplication facts to 9×9, and related division facts, are particularly important as these are the facts required for formal written multiplication and division. The 36 multiplication facts that are required for formal written multiplication are as follows.

$2\times2=4$							
$3\times2=6$	$3\times3=9$						
$4\times2=8$	$4\times3=12$	$4\times4=16$					
$5\times2=10$	$5\times3=15$	$5\times4=20$	$5\times5=25$				
$6\times2=12$	$6\times3=18$	$6\times4=24$	$6\times5=30$	$6\times6=36$			
$7\times2=14$	$7\times3=21$	$7\times4=28$	$7\times5=35$	$7\times6=42$	$7\times7=49$		
$8\times2=16$	$8\times3=24$	$8\times4=32$	$8\times5=40$	$8\times6=48$	$8\times7=56$	$8\times8=64$	
$9\times2=18$	$9\times3=27$	$9\times4=36$	$9\times5=45$	$9\times6=54$	$9\times7=63$	$9\times8=72$	$9\times9=81$

You can find out more about multiplicative fluency here in the calculation and fluency section: **5NF–1**

Making connections

Fluency in these multiplicative facts is required for:

- mental calculation, when combined with place-value knowledge, for example, if pupils know that $3 \times 4 = 12$, then they can calculate $0.3 \times 4 = 1.2$ and $0.03 \times 4 = 0.12$ (**5NF–2**)
- identifying factors and multiples (**5MD–1**)
- within-column calculation in short multiplication (**5MD–3**) and short division (**5MD–4**)
- calculating fractions of quantities (**5F–1**)
- finding equivalent fractions (**5F–2**)
- calculating area (**5G–2**)

5NF–1 Assessment guidance

Assessment for this criterion should focus on whether pupils have fluency in multiplication facts and division facts. Pupils can be assessed through a time-limited written check.