Varied Fluency
Efficient Multiplication

Teaching Note: Due to the nature of this step, many of the questions have various possible answers. The questions have been designed to allow the children to discuss, explain and demonstrate which methods they find most efficient.

National Curriculum Objectives:

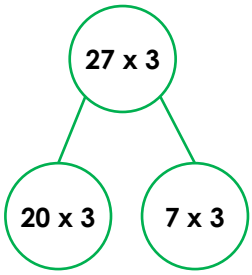
Mathematics Year 4: (4C6a) Recall multiplication and division facts for multiplication tables up to 12 × 12
Mathematics Year 4: (4C6b) Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
Mathematics Year 4: (4C6c) Recognise and use factor pairs and commutativity in mental calculations
Mathematics Year 4: (4C8) Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as *n* objects are connected to *m* objects

Differentiation:

Developing Questions to support using partitioning and addition to efficiently multiply 2-digit numbers using all 12 times tables; where the 2-digit numbers can be partitioned into known facts up to 12x. Times table support and/or scaffolding provided.
Expected Questions to support using factors, partitioning, addition and subtraction to efficiently multiply 2-digit numbers using all 12 times tables. Some scaffolding provided.
Greater Depth Questions to support using factors, partitioning, addition and subtraction, doubling and halving to efficiently multiply 2-digit numbers by using all 12 times tables; using known facts up to 12x.

Efficient Multiplication

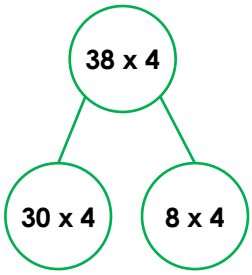
1a. Kyle has started to work out 27 x 3. Complete his calculation.



20	x	3	=	
	x	3	=	
	+		=	

D VF

1b. Ruby has started to work out 38 x 4. Complete her calculation.



	x	4	=	
8	x		=	32
	+		=	

D VF

2a. Jade is calculating 42 x 3 efficiently.

1 x 3 = 3
2 x 3 = 6
3 x 3 = 9
4 x 3 = 12
5 x 3 = 15

40	x	3	=	120
2	x	3	=	6
120	+	6	=	114

Jade is correct. True or false?

D VF

2b. Harold is calculating 43 x 6 efficiently.

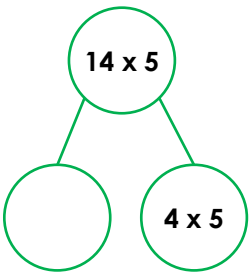
1 x 6 = 6
2 x 6 = 12
3 x 6 = 18
4 x 6 = 24
5 x 6 = 30

40	x	6	=	240
3	x	6	=	18
240	+	18	=	258

Harold is correct. True or false?

D VF

3a. Alicia is efficiently solving 14 x 5.



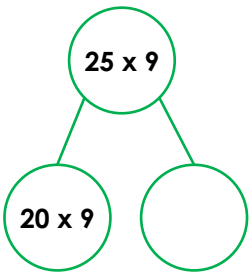
	x	5	=	
	x	5	=	

70 50 20

Complete her method and circle the correct answer above.

D VF

3b. Carlos is efficiently solving 25 x 9.



	x	9	=	
	x	9	=	

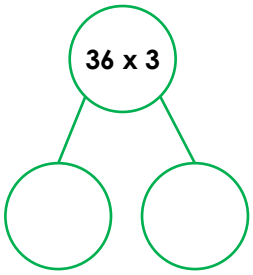
245 250 225

Complete his method and circle the correct answer above.

D VF

Efficient Multiplication

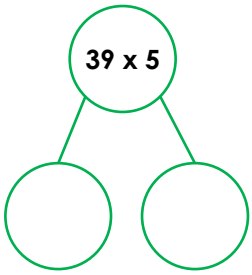
4a. Ruby has started to work out 36 x 3. Complete her calculation.



30	x	3	=	
	x		=	
	+		=	

VF

4b. Joel has started to work out 39 x 5. Complete his calculation.



	x	5	=	
9	x		=	
	+		=	

VF

5a. Ronan is calculating 49 x 7 efficiently.

50	x	7	=	350
1	x	50	=	50
350	–	50	=	300

Ronan is correct. True or false?

VF

5b. Julia is calculating 37 x 4 efficiently.

37	x	2	=	74
37	x	4	=	148
74	+	148	=	222

Julia is correct. True or false?

VF

6a. Ellan is using factors to solve 15 x 6.

15	x	6	=		x		x 6
15	x	6	=	3	x		

18 90 180

Complete her method and circle the correct answer above.

VF

6b. Hank is efficiently solving 25 x 8.

25	x	8	=		x		x 8
25	x	8	=	5	x		

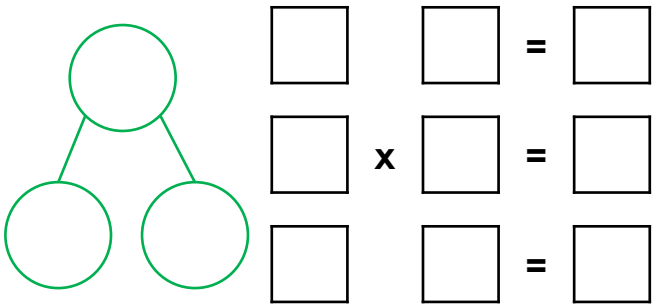
200 180 190

Complete his method and circle the correct answer above.

VF

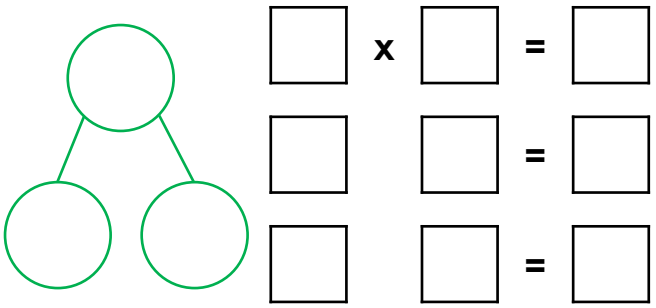
Efficient Multiplication

7a. Belinda has started to work out 64 x 9. Complete her calculation.



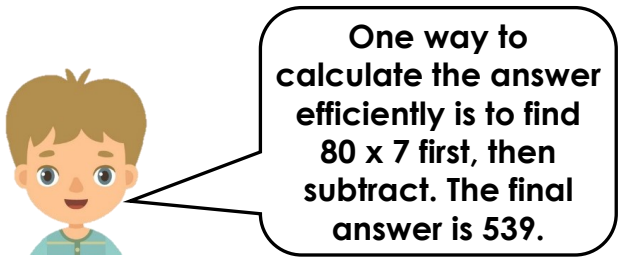
GD VF

7b. Troy has started to work out 58 x 7. Complete his calculation.



GD VF

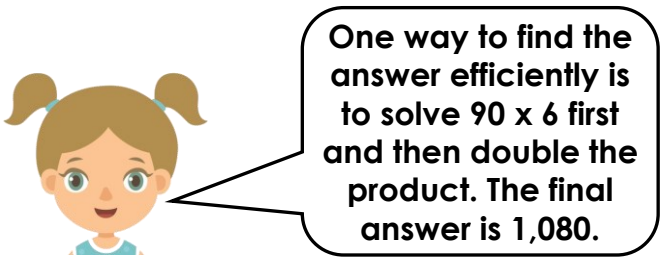
8a. Umar is calculating 77 x 7 efficiently.



Umar is correct. True or false?

GD VF

8b. Verity is calculating 45 x 6 efficiently.



Verity is correct. True or false?

GD VF

9a. Kiera is efficiently solving 75 x 6.

150	x	6	=	
	÷	2	=	

900	450	180

Complete her method and circle the correct answer.

GD VF

9b. Kane is efficiently solving 35 x 8.

70	x		=	

300	270	280

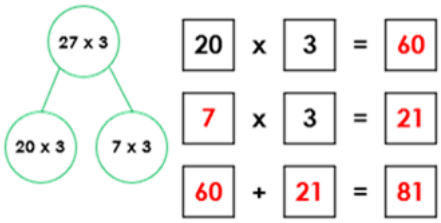
Complete his method and circle the correct answer.

GD VF

Efficient Multiplication

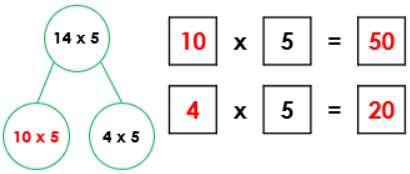
Developing

1a. 27 x 3 = 81



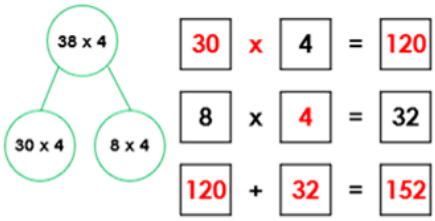
2a. False because 42 x 3 = 126, not 114.
40 x 3 = 120, 2 x 3 = 6 and 120 + 6 = 126.

3a. 14 x 5 = 70. Alicia's completed method should look like this:



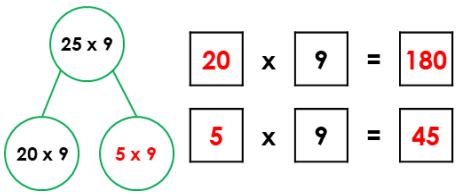
Developing

1b. 38 x 4 = 152



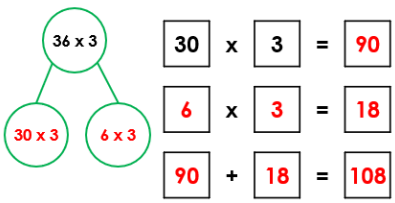
2b. True, Harold is correct.

3b. 25 x 9 = 225. Carlos's completed method should look like this:



Expected

4a. 36 x 3 = 108. Ruby's completed method should look like this:

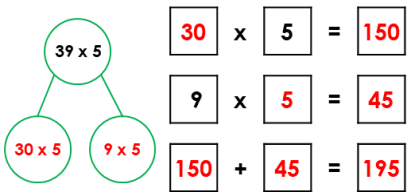


5a. False because 49 x 7 = 343, not 300.
50 x 7 = 350, 1 x 7 = 7 and 350 – 7 = 343

6a. 15 x 6 = 90. 15 x 6 = 3 x 5 x 6
15 x 6 = 3 x 30; 15 x 6 = 90

Expected

4b. 39 x 5 = 195. Joel's completed method should look like this:

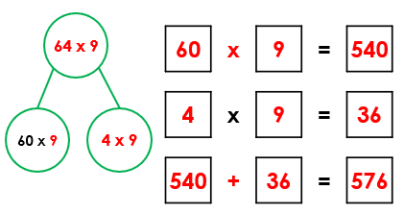


5b. False because 37 x 4 = 148, not 222.
37 x 2 = 74 and 74 x 2 = 148

6b. 25 x 8 = 200. 25 x 8 = 5 x 5 x 8
25 x 8 = 5 x 40; 25 x 8 = 200

Greater Depth

7a. Belinda's completed working should look like this:

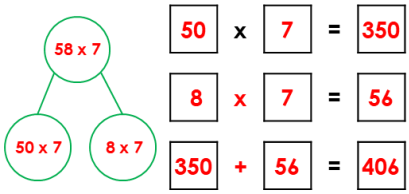


8a. True

9a. 75 x 6 = 450.
150 x 6 = 900; 900 ÷ 2 = 450.

Greater Depth

7b. Troy's completed working should look like this:



8b. False, because 45 x 6 = 270, not 1,080.
The product should be halved instead.

9b. 35 x 8 = 280; 70 x 4 = 280.