

YEAR 6		Multiplication																																																							
Vocabulary: multiply, multiplication, factor, product, multiple, times, groups, inverse, squared, cubed, multiplier, multiplicand, scaling																																																									
Concrete		Pictorial	Abstract																																																						
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Multiply numbers with up to two decimal places by one-digit and two-digit whole numbers. 3.42 × 3		Multiply numbers with up to two decimal places by one-digit and two-digit whole numbers.	Multiply numbers with up to two decimal places by one-digit and two-digit whole numbers.																																																						
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Mental Methods

Number facts

Use knowledge of counting in multiples to count in decimal steps (two decimal places)

0.09 0.18 0.27 0.36

0.48 0.44 0.4 0.36 ...

Derive doubles of decimals (to two decimal places) using knowledge of place value

Double 0.47 is 0.73x2=

Double 3.08 is 2.59+2.59=

Continue to recall multiplication facts for multiplication tables up to 12×12 fluently, and derive and use related facts

30 multiplied by 800 multiply 0.12 by 6 the product of 0.08 and 4 0.4 multiplied by 0.5

Identify common factors, common multiples and prime numbers

find the highest common factor of 18 and 24

find the lowest common multiple of 6 and 15

identify whether 87 is a prime number

list the prime factors of 84 ($84 = 2 \times 42 = 2 \times 2 \times 21 = 2 \times 2 \times 3 \times 7$)

use the tests of divisibility to identify factors and multiples

continue to use square and cube numbers

What is... 12^2 ? 6^3 ?

Using known facts and place value:

17×98

$17 \times 100 = 1700$ so 17×98 is 1666 (subtract 17×2 from 1700)

15×18 - recognise 15×18 is equivalent to 30×9

Partitioning

6.04×3 ($6 \times 3 = 18$; $0.04 \times 3 = 0.12$ so $18 + 0.12 = 18.12$)

With jottings

0.43×6 ($0.4 \times 6 = 2.4$; $0.03 \times 6 = 0.18$ so $2.4 + 0.18 = 2.58$)

Doubling and halving:

0.24×40 (double and double again, then multiply by 10)

Double 0.24 is 0.48, double 0.48 is 0.96, $0.96 \times 10 = 9.6$

With jottings

68×25 (multiply by 100, then halve and halve again)

$68 \times 100 = 6800$ Half of 6800 is 3400 Half of 3400 is 1700

Factors

$1.5 \times 16 = 1.5 \times 2 \times 8$

$1.5 \times 2 = 3$ $3 \times 8 = 24$

with jottings

$32 \times 24 = 32 \times 3 \times 8$

$32 \times 3 = 96$; $96 \times 8 = 800 - (4 \times 8) = 768$

Estimating

Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

5872×54 is approximately 6000×50

Continue to use appropriate strategies to check answers

Check 496×5 by using an equivalent calculation

Multiply by 10 and halve or use a known fact and adjust (500×5) – (4×5)