

Learning Reminders

Use grid and short multiplication to multiply 4-digit by 1-digit numbers

$$6 \times 4872$$

It is useful to **estimate** first.
Rounding to 6×5000 to give an
estimate of 30,000.

Let's try using grid.

\times	4000	800	70	2	
6	24,000	4800	420	12	29,232

First partition 4872 into
4000, 800, 70 and 2 and
set out in the grid.

Second solve each
multiplication using **number
facts and place value.**

Finally add each answer to
find the total.

Learning Reminders

Use grid and short multiplication to multiply 4-digit by 1-digit numbers

$$6 \times 4872$$

Estimate 30,000.

Let's try using short multiplication.

First, set out neatly in columns, leaving a space for any digits carried between columns.

Second, starting on the right, multiply each digit of 4872 in turn. Remember to add on any digits carried.

Finally check with the estimate; that was pretty close!

$$\begin{array}{r} 4872 \\ \times \quad 6 \\ \hline 29232 \end{array}$$

Practice Sheet Mild

Grid multiplication

Estimate which of these multiplications will give answers:

- less than 1000.
- between 1000 and 3000.
- between 3000 and 5000.
- between 5000 and 7000.
- greater than 7000.

1. 3×642
2. 5×527
3. 6×253
4. 3×275
5. 8×524
6. 3×314
7. 7×823
8. 9×851

Now use grid multiplication to work out the answers!

Challenge

Which of these two multiplications do you think will have the biggest answer?
Check to see if you are right.

9. 3×5364
10. 6×2348

Practice Sheet Hot

Short multiplication

Estimate first, then use short multiplication to find the exact answers.

1. 4×6234
2. 7×5382
3. 8×4734
4. 5×7856
5. 6×8431
6. 9×5408
7. 3×8796
8. 7×6857

Challenge

Write a different multiplication with an answer between 20,000 and 30,000.
Write a different multiplication with an answer between 50,000 and 60,000.

Practice Sheets Answers

Grid multiplication (mild)

Estimate which of these multiplications will give answers:

- less than 1000. $3 \times 275, 3 \times 314$
- between 1000 and 3000. $3 \times 642, 6 \times 253, 5 \times 527$
- between 3000 and 5000. 8×524
- between 5000 and 7000. 7×823
- greater than 7000. 9×851

1. $3 \times 642 = 1926$
2. $5 \times 527 = 2635$
3. $6 \times 253 = 1518$
4. $3 \times 275 = 825$
5. $8 \times 524 = 4192$
6. $3 \times 314 = 942$
7. $7 \times 823 = 5761$
8. $9 \times 851 = 7659$

Challenge

Q9 will have the biggest answer as estimating $3 \times 5000 = 15,000$ which is greater than $6 \times 2000 = 12,000$.

9. $3 \times 5364 = 16,092$
10. $6 \times 2348 = 14,088$

Short multiplication (hot)

1. $4 \times 6234 = 24,936$
2. $7 \times 5382 = 37,674$
3. $8 \times 4734 = 37,872$
4. $5 \times 7856 = 39,280$
5. $6 \times 8431 = 50,586$
6. $9 \times 5408 = 48,672$
7. $3 \times 8796 = 26,388$
8. $7 \times 6857 = 47,999$

Challenge

Write a different multiplication with an answer between 20,000 and 30,000.

e.g. $6 \times 3983 = 23,898$

Write a different multiplication with an answer between 50,000 and 60,000.

e.g. $9 \times 6326 = 56,934$

A Bit Stuck? Multiplying choices

Work in pairs

Things you will need:

- A pencil



What to do:

- Choose place value cards from each column to make a 3-digit number. Then use the grid method to multiply your number by any number from 3 to 9.



3 x 542				
x	500	40	2	
3	1500	120	6	1626

- Your challenge to is come up with multiplications so that:
 - one answer is less than 1000;
 - one answer is between 1000 and 2000;
 - one answer is between 2000 and 3000;
 - one answer is between 3000 and 4000;
 - one answer greater than 4000.
- Spread the work out between you!

S-t-r-e-t-c-h:

Try and think of a multiplication with an answer between 5000 and 6000, this time not using any of the place value cards.

Learning outcomes:

- I can use the grid method to multiply 3-digit numbers by 1-digit numbers.
- I am beginning to estimate the answers.

Investigation

Last digit specials

1. Use grid or short multiplication to calculate:

1×234

2×345

3×456

4×567

5×678

Write what you notice about the last digit of the answers

2. Use grid or short multiplication to calculate:

1×2345

2×3456

3×4567

4×5678

5×6789

Write what you notice about the last digit of the answers

3. Now consider these... Can you predict the last digits of the answers?

9×8765

8×7654

7×6543

6×5432

5×4321

4. Use grid or short multiplication to check your prediction.