



WORKSHEET 11

Year 6 Mathematics: Calculating & Money

Multiplication Strategies

Focus: Mental Strategies and the Area Model

Name: _____ Date: _____

Multiplication Strategies

Mental Strategies for Multiplication:

1. Split Strategy (Partitioning): Break numbers into place value parts.

Example: $14 \times 5 = (10 \times 5) + (4 \times 5) = 50 + 20 = 70$

2. Doubling and Halving: Make one number easier by doubling it and halving the other.

Example: $5 \times 16 = 10 \times 8 = 80$ (doubled 5, halved 16)

3. Compensation: Round to a friendly number, then adjust.

Example: $9 \times 7 = (10 \times 7) - (1 \times 7) = 70 - 7 = 63$

The Area Model: Visualise multiplication as a rectangle split into sections.

	20	3
10	200	30
2	40	6

$$23 \times 12 = 200 + 30 + 40 + 6 = 276$$

Section 1: Split Strategy (Fluency)

1. Calculate 14×5 by splitting 14 into 10 and 4.

Show: $(10 \times 5) + (4 \times 5) = \text{----} + \text{----} = \text{----}$

Answer: _____



2. Use the split strategy to solve 32×3 .
Split 32 into 30 and 2.

Answer: _____

3. Calculate 25×4 using the split strategy.
Split 25 into 20 and 5.

Answer: _____

4. Use partitioning to solve 43×2 .

Answer: _____

5. Calculate 16×6 by splitting 16 into 10 and 6.

Answer: _____

6. Use the split strategy: 52×5

Answer: _____

MULTIPLICATION MASTER!



Calculator Cat

What do you call a cat that can multiply?
A math-e-meow-tician!



Section 2: Doubling and Halving (Reasoning)

7. To solve 5×16 , you can double 5 to get 10, and halve 16 to get 8. What is 10×8 ?

Answer: _____

8. Use doubling and halving to solve 4×18 .
(Hint: Double 4 to make 8, halve 18 to make 9)

Answer: _____

9. Calculate 5×24 using the doubling and halving strategy.

Answer: _____

10. Use doubling and halving: 6×15
(Hint: Halve 6 to make 3, double 15 to make 30)

Answer: _____

11. True or False: 8×25 can be solved by halving 8 to get 4 and doubling 25 to get 50.

Answer: _____



SUPER SOLVER!

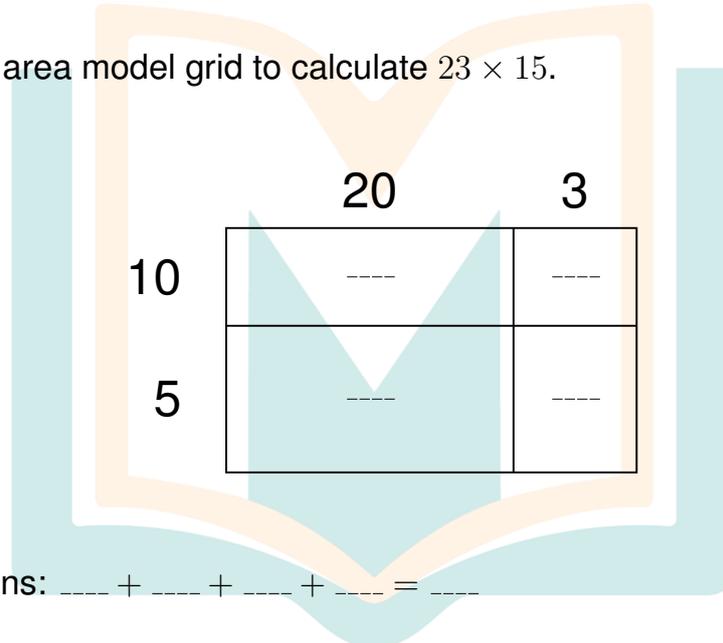


Multiply Mouse

Why did the mouse become a mathematician?
Because it was good at multi-ply-ing cheese wedges!

Section 3: The Area Model (Challenge)

12. Fill in the area model grid to calculate 23×15 .



Add all sections: ----- + ----- + ----- + ----- = -----

Answer: _____

13. Use the area model to calculate 34×12 .
 (Split 34 into 30 and 4; split 12 into 10 and 2)

Answer: _____

14. Create an area model for 26×14 and solve.

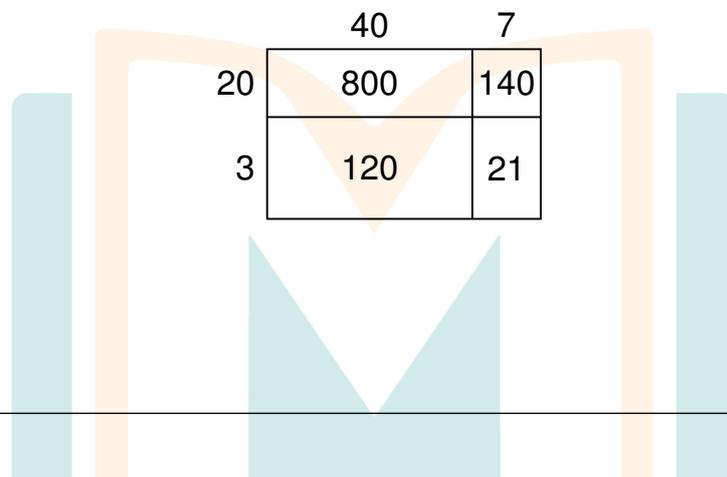


Answer: _____

15. Using the area model, calculate 45×13 .

Answer: _____

16. Look at this area model. What multiplication does it represent?



Answer: _____

AREA MODEL ACE!



Grid Ghost

Why did the ghost love the area model?
Because it made multiplication BOO-tifully easy!

Fantastic Work! Check your answers on the next page.



ANSWER KEY

Worksheet 11: Mental Strategies & Area Model

Section 1: Split Strategy

1. $(10 \times 5) + (4 \times 5) = 50 + 20 = 70$
2. $(30 \times 3) + (2 \times 3) = 90 + 6 = 96$
3. $(20 \times 4) + (5 \times 4) = 80 + 20 = 100$
4. $(40 \times 2) + (3 \times 2) = 80 + 6 = 86$
5. $(10 \times 6) + (6 \times 6) = 60 + 36 = 96$
6. $(50 \times 5) + (2 \times 5) = 250 + 10 = 260$

Section 2: Doubling and Halving

7. 80 ($10 \times 8 = 80$)
8. 72 ($8 \times 9 = 72$)
9. 120 ($10 \times 12 = 120$, doubled 5 to 10, halved 24 to 12)
10. 90 ($3 \times 30 = 90$)
11. True ($4 \times 50 = 200$)

Section 3: The Area Model

12. Grid sections: 200, 30, 100, 15. Total: $200 + 30 + 100 + 15 = 345$
13. $(30 \times 10) + (30 \times 2) + (4 \times 10) + (4 \times 2) = 300 + 60 + 40 + 8 = 408$
14. $(20 \times 10) + (20 \times 4) + (6 \times 10) + (6 \times 4) = 200 + 80 + 60 + 24 = 364$
15. $(40 \times 10) + (40 \times 3) + (5 \times 10) + (5 \times 3) = 400 + 120 + 50 + 15 = 585$
16. 47×23 ($40 + 7$ and $20 + 3$). Total: $800 + 140 + 120 + 21 = 1081$



WORKSHEET 12

Year 6 Mathematics: Calculating & Money Multiplication Strategies

Focus: Written Methods (Vertical Algorithm)

Name: _____ Date: _____

Vertical Multiplication Method

The Vertical Algorithm (Long Multiplication):

Step 1: Line up the numbers by place value.

Step 2: Multiply by the ones digit first.

Step 3: Multiply by the tens digit (put a zero placeholder).

Step 4: Add the partial products.

Example: 24×13

$$\begin{array}{r}
 24 \\
 \times 13 \\
 \hline
 72 \quad (24 \times 3) \\
 240 \quad (24 \times 10) \\
 \hline
 312
 \end{array}$$

Answer: 312

Section 1: Vertical Multiplication (Fluency)

1. Calculate 345×6 using the vertical method.



Answer: _____

2. Calculate 2104×3 using the vertical method.

Answer: _____

3. Multiply 527×4 vertically.

Answer: _____

4. Calculate 1236×5 using the vertical algorithm.

Answer: _____

5. Solve 789×7 using the written method.

Answer: _____

6. Calculate 3045×8 vertically.

Answer: _____



VERTICAL VIRTUOSO!



Pencil Pal

Why did the pencil love multiplication?
Because it could always draw the line... vertically!

Section 2: Long Multiplication (Reasoning)

7. Calculate 24×13 . Remember to put down the zero for the second row!

Answer: _____

8. Multiply 36×15 using long multiplication.

Answer: _____

9. Calculate 52×24 using the vertical algorithm.

Answer: _____

10. Identify the mistake: A student wrote $12 \times 12 = 34$. Explain why this is wrong and give the correct answer.

Answer: _____



11. Calculate 48×17 using long multiplication.

Answer: _____

ALGORITHM EXPERT!



Robo-Calc

What's a robot's favourite type of multiplication?
Long multiplication... because it computes perfectly!

Section 3: Word Problems (Challenge)

12. A cinema has 25 rows of seats. There are 18 seats in each row. How many seats are there in total?

Answer: _____

13. If a school bus holds 42 students, how many students can 12 buses hold?

Answer: _____

14. A box contains 36 chocolates. How many chocolates are in 24 boxes?

Answer: _____

15. A farmer plants 45 rows of corn. Each row has 32 corn plants. How



many corn plants are there in total?

Answer: _____

16. Tickets to a show cost \$27 each. If 16 people buy tickets, how much money is collected?

Answer: _____

17. A bookshelf has 15 shelves. Each shelf holds 28 books. How many books can the bookshelf hold?

Answer: _____

WORD PROBLEM WIZARD!



Why did the wizard love multiplication?

Because it was like magic... the numbers multiply-appeared!

Brilliant Work! Check your answers on the next page.



ANSWER KEY

Worksheet 12: Written Methods

Section 1: Vertical Multiplication

1. 2070 (345×6)
2. 6312 (2104×3)
3. 2108 (527×4)
4. 6180 (1236×5)
5. 5523 (789×7)
6. 24360 (3045×8)

Section 2: Long Multiplication

7. 312 ($24 \times 13 = 72 + 240 = 312$)
8. 540 ($36 \times 15 = 180 + 360 = 540$)
9. 1248 ($52 \times 24 = 208 + 1040 = 1248$)
10. The student only multiplied $12 \times 2 = 24$ and $12 \times 1 = 12$, then added incorrectly. Correct answer: $12 \times 12 = 144$
11. 816 ($48 \times 17 = 336 + 480 = 816$)

Section 3: Word Problems

12. 450 seats ($25 \times 18 = 450$)
13. 504 students ($42 \times 12 = 504$)
14. 864 chocolates ($36 \times 24 = 864$)
15. 1440 corn plants ($45 \times 32 = 1440$)
16. \$432 ($27 \times 16 = 432$)
17. 420 books ($15 \times 28 = 420$)

Magnificent Achievement!

You've mastered Multiplication Strategies!
From mental methods to vertical victories!