MULTIPLICATION

A Complete Mathematics Worksheet Pack

Learn • Practise • Apply • Reason

CONCEPTS	SKILLS	APPLICATION
Equal groups Repeated addition Arrays	Times tables Multiplication strategies Multi-digit multiplication	Word problems Estimation Reasoning

Flexible, non-grade-specific mathematics resource

Name: _____ Date: _____

1. Understanding Multiplication

Multiplication is a way of adding equal groups. It helps us find the total quickly.

1. There are 3 bags with 4 marbles in each bag. How many marbles are there altogether? _____

2. 5 plates have 2 biscuits each. How many biscuits are there in all? _____

3. There are 4 rows of chairs with 6 chairs in each row. How many chairs are there? _____

4. 7 children have 3 pencils each. How many pencils are there altogether? _____

5. Draw 3 equal groups of 5 dots. Write the multiplication sentence: _____

6. Complete: 4 groups of 2 = ____ + ____ + ____ + ____ = ____ × ____ = ____

Think: What must be true about the groups in a multiplication situation?

_____
_____

2. Equal Groups, Repeated Addition & Arrays

Multiplication can be shown using equal groups, repeated addition and arrays (rows and columns).

1. Draw 4 groups of 3 objects. Write the repeated addition sentence and multiplication sentence.

2. 5 + 5 + 5 + 5 = ____ × ____ = ____.

3. 6 groups of 2 = ____ + ____ + ____ + ____ + ____ + ____ = ____.

4. An array has 3 rows and 4 columns. How many objects are there? _____

5. Draw an array for 4 × 5. Label the rows and columns.

6. Complete the table:

Rows	Columns	Total
2	**5**	_____
3	**6**	_____
4	**4**	_____
5	**3**	_____
6	**2**	_____

Challenge: Show two different arrays that each contain 24 objects.

_____

_____

3. Multiplication as Scaling & Number Patterns

Multiplication can describe equal jumps and patterns. Notice how the product changes when a factor changes.

1. Complete the pattern: 2, 4, 6, ____, ____, ____.

2. Complete the pattern: 5, 10, 15, ____, ____, ____.

3. 3 × 4 means 3 groups of ____, so the total is ____.

4. If 4 × 3 = 12, what is 4 × 4? Explain how you know. _____

5. Complete: 2 × 6 = ____; 3 × 6 = ____; 4 × 6 = ____; 5 × 6 = ____.

6. A ribbon is 4 cm long. What is the total length of 5 such ribbons? _____

7. A box holds 8 crayons. How many crayons are in 6 boxes? _____

Think: What happens to the product when one factor increases by 1 and the other factor stays the same?

_____
_____

4. Multiplication Facts & Fact Families

A multiplication fact family connects multiplication and division facts using the same three numbers.

1. 3, 4, 12: 3 × 4 = ____; 4 × 3 = ____; 12 ÷ 3 = ____; 12 ÷ 4 = ____.

2. 5, 6, 30: 5 × 6 = ____; 6 × 5 = ____; 30 ÷ 5 = ____; 30 ÷ 6 = ____.

3. 7, 4, 28: 7 × 4 = ____; 4 × 7 = ____; 28 ÷ 7 = ____; 28 ÷ 4 = ____.

4. 8, 5, 40: 8 × 5 = ____; 5 × 8 = ____; 40 ÷ 8 = ____; 40 ÷ 5 = ____.

5. If 6 × 7 = 42, write the related multiplication and division facts.

6. Complete: 9 × 3 = ____; ____ × 9 = 36; 45 ÷ 5 = ____.

Challenge: Choose three numbers and write a complete multiplication and division fact family.

_____

_____

5. Multiplication Strategies

Use known facts, doubling, breaking numbers apart and the distributive property to multiply efficiently.

1. Use doubling: 4 × 6 = double of 2 × 6 = ____.

2. Break apart: 6 × 7 = (6 × 5) + (6 × 2) = ____ + ____ = ____.

3. Use a friendly number: 9 × 8 = (10 × 8) – 8 = ____.

4. Solve: 12 × 4 = (10 × 4) + (2 × 4) = ____.

5. Solve in two different ways: 7 × 8 = ____.

6. Find 15 × 6 by breaking 15 into 10 and 5.

7. Which strategy would you use for 19 × 5? Explain briefly.

Reason: Why can breaking a factor into smaller parts make multiplication easier?

_____

_____

6. Multiplication Facts Practice

Practise multiplication facts to build speed, accuracy and confidence.

2 × 7 = ____	**3 × 8 = ____**	**4 × 6 = ____**
5 × 9 = ____	**6 × 7 = ____**	**8 × 8 = ____**
9 × 6 = ____	**7 × 7 = ____**	**12 × 4 = ____**
11 × 5 = ____	**6 × 9 = ____**	**8 × 12 = ____**
7 × 9 = ____	**9 × 11 = ____**	**12 × 12 = ____**

Confidence check: I can recall multiplication facts quickly / I need more practice.

Which times tables do you want to practise again? _____

7. Missing Numbers

Find the missing factor or product that makes each multiplication sentence true.

1. 6 × ____ = 42 2. ____ × 5 = 35

3. 9 × ____ = 72 4. ____ × 8 = 56

5. 12 × ____ = 96 6. ____ × 7 = 63

7. 4 × ____ = 100 8. ____ × 6 = 54

9. 15 × ____ = 120 10. ____ × 12 = 144

11. 25 × ____ = 200 12. ____ × 15 = 180

Reasoning: Write a division equation that proves your answer to Question 10.

_____

_____

8. Multiplication with Larger Numbers

Use place value and the distributive property, then use the written method to multiply larger numbers.

1. 23 × 3 = ____

2. 46 × 4 = ____

3. 58 × 6 = ____

4. 124 × 3 = ____

5. 236 × 4 = ____

6. 157 × 6 = ____

7. 248 × 12 = ____

8. 325 × 24 = ____

Show your working: Choose two questions above and solve them using the vertical method.

_____
_____
_____
_____
_____

Think: Why is it important to line up place values correctly when using the written method?

_____
_____

9. Multiplication in Real Life

Read each situation carefully. Decide which quantities are being repeated in equal groups.

1. A classroom has 8 rows of desks with 6 desks in each row. How many desks are there? _____

2. A shop packs 24 pencils in each box. How many pencils are in 7 boxes? _____

3. A family drives 85 km each day for 4 days. What distance do they travel? _____

4. A theatre has 18 rows with 25 seats in each row. How many seats are there? _____

5. One notebook costs ■35. What is the cost of 8 notebooks? _____

6. A school orders 125 badges for each of 6 houses. How many badges are ordered? _____

7. A factory makes 245 parts each day. How many parts does it make in 12 days? _____

Challenge: Write a real-life multiplication word problem of your own and solve it.

_____
_____
_____

10. Multiplication Detective — Reasoning

Read carefully. Explain your thinking, not just your answer.

1. Sam says: “7 × 8 = 54.” Is Sam correct? If not, find and explain the mistake.

2. Mia calculates 9 × 6 as 10 × 6. What must she do to correct her answer?

3. The product of two numbers is 48. One factor is 6. What is the other factor?

4. I am greater than 30 and less than 50. I am a multiple of both 6 and 8. What number am I?

5. Which is greater: 12 × 8 or 10 × 10? Show your thinking.

6. Three equal groups contain 27 objects altogether. How many objects are in each group?

7. Create two different multiplication sentences with a product of 36.

_____

_____

11. Mixed Multiplication Challenge

Use any efficient strategy. Show working where needed.

1. 16 × 8 = ____ 2. 24 × 12 = ____ 3. 35 × 14 = ____

4. 48 × 16 = ____ 5. 125 × 24 = ____ 6. 236 × 35 = ____

7. Write two different multiplication equations with a product of 72.

8. A number multiplied by 9 equals 315. What is the number? ____

9. Which product is greater: 28 × 35 or 30 × 32? ____

10. Estimate 49 × 21 by rounding each factor to the nearest ten. Then find the exact product.

11. Write a word problem for 24 × 15 = 360.

12. Super Challenge: Use the digits 2, 3, 4 and 5 once each to make two two-digit numbers with the greatest possible product. What is the product?

_____
_____
_____

Teacher Answer Key

Page 2 – Understanding Multiplication: 1) 12 2) 10 3) 24 4) 21 5) 3×5=15 6) 2+2+2+2=8; 4×2=8.

Page 3 – Equal Groups, Repeated Addition & Arrays: 1) 3+3+3+3=12; 4×3=12 2) 4×5=20 3) six 2s =12; 6×2=12 4) 12 5) 4 rows of 5 (20) 6) 10,18,16,15,12. Challenge examples: 4×6 and 3×8.

Page 4 – Scaling & Number Patterns: 1) 8,10,12 2) 20,25,30 3) 4;12 4) 16, one more group of 4 5) 12,18,24,30 6) 20 cm 7) 48.

Page 5 – Multiplication Facts & Fact Families: Q1) 12,12,4,3 Q2) 30,30,6,5 Q3) 28,28,4,7 Q4) 40,40,5,8 Q5) 6×7=42, 7×6=42, 42÷6=7, 42÷7=6 Q6) 27,4,9.

Page 6 – Multiplication Strategies: 1) 24 2) 30+12=42 3) 72 4) 48 5) 56 6) 60+30=90 7) 20×5–5=95.

Page 7 – Multiplication Facts Practice: 14,24,24,45,42,64,54,49,48,55,54,96,63,99,144.

Page 8 – Missing Numbers: 1) 7 2) 7 3) 8 4) 7 5) 8 6) 9 7) 25 8) 9 9) 8 10) 12 11) 8 12) 12. Q10 proof: 144÷12=12.

Page 9 – Multiplication with Larger Numbers: 1) 69 2) 184 3) 348 4) 372 5) 944 6) 942 7) 2,976 8) 7,800.

Page 10 – Multiplication in Real Life: 1) 48 desks 2) 168 pencils 3) 340 km 4) 450 seats 5) ■280 6) 750 badges 7) 2,940 parts.

Page 11 – Multiplication Detective: 1) No; 7×8=56. 2) Subtract 6; 54. 3) 8. 4) 48. 5) 10×10=100 is greater than 12×8=96. 6) 9. 7) Answers vary, e.g. 4×9 and 6×6.

Page 12 – Mixed Multiplication Challenge: 1) 128 2) 288 3) 490 4) 768 5) 3,000 6) 8,260 7) Answers vary 8) 35 9) 28×35=980; 30×32=960, so first is greater 10) Estimate 1,000; exact 1,029 11) Answers vary 12) 52×43=2,236 (also 53×42=2,226; greatest is 52×43=2,236).