

Knowledge Organiser

Year Group	Subject	Topic
3	Maths	Multiplication & Division B

The Big Picture

In this unit, pupils build on their understanding of multiplication and division by learning the **8× multiplication table** and related division facts. They use arrays, equal groups, bar models and number lines to solve problems. Pupils develop fluency, reasoning and problem-solving skills while exploring doubling, halving and relationships between multiplication and division.

Enquiry Question




- How can arrays help me solve multiplication calculations?
- How are multiplication and division connected?
- How can I use the 8 times table to solve problems?
- What is a fact family?
- How can I use multiplication and division in everyday life?
- How can I explain my mathematical thinking?

Key Vocabulary

Multiply - To find the total of equal groups.
 Division - Splitting into equal groups.
 Equal Groups - Groups containing the same number.
 Array - Objects arranged in rows and columns.
 Row - A horizontal line of objects.
 Column - A vertical line of objects.
 Product - The answer to a multiplication calculation.

Quotient - The answer to a division calculation.
 Fact Family - Related multiplication and division facts.
 Double - Multiply by two.
 Half - Divide by two.
 Multiple - The result of multiplying a number.
 Bar Model - A visual representation of a calculation.
 Reasoning - Explaining mathematical thinking.

Core Knowledge

<p>1. MULTIPLICATION</p> <p>Multiplication means finding the total of equal groups.</p> <p>Example:</p> $4 \times 8 = 32$ <p>4 groups of 8 make 32.</p> 	<p>2. EQUAL GROUPS</p> <p>Equal groups contain the same amount in each group.</p> <p>Example:</p>  <p>3 groups of 4 = 12</p>	<p>3. ARRAYS</p> <p>An array shows multiplication using rows and columns.</p> <p>Example:</p>  <p>$2 \times 4 = 8$</p> <p>Arrays help us see multiplication clearly.</p>
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4. THE 8 TIMES TABLE

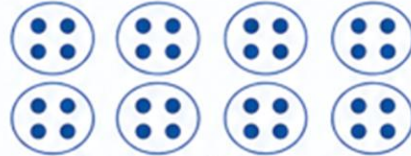
$$\begin{array}{ll} 8 \times 1 = 8 & 8 \times 7 = 56 \\ 8 \times 2 = 16 & 8 \times 8 = 64 \\ 8 \times 3 = 24 & 8 \times 9 = 72 \\ 8 \times 4 = 32 & 8 \times 10 = 80 \\ 8 \times 5 = 40 & 8 \times 11 = 88 \\ 8 \times 6 = 48 & 8 \times 12 = 96 \end{array}$$



5. DIVISION

Division means splitting into equal groups.

Example: $32 \div 8 = 4$



32 shared into 8 equal groups gives 4 in each group.

6. FACT FAMILIES

Fact families show how multiplication and division are connected.

Example:

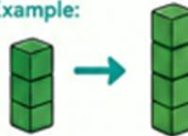
$$\begin{array}{l} 8 \times 4 = 32 \\ 4 \times 8 = 32 \\ 32 \div 8 = 4 \\ 32 \div 4 = 8 \end{array}$$



7. DOUBLING AND HALVING

Doubling means multiplying by 2.

Example:



16 doubled = 32

Halving means dividing by 2.

Example:

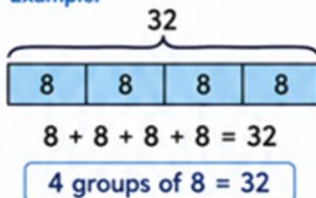


32 halved = 16

8. BAR MODELS

Bar models help us represent multiplication and division problems visually.

Example:



9. PROBLEM SOLVING

Multiplication and division help solve real-life problems involving:

- ★ Sharing
- ★ Grouping
- ★ Repeated addition
- ★ Scaling
- ★ Comparing quantities



10. WHAT I NEED TO REMEMBER

- ✓ Multiplication means equal groups.
- ✓ Division means sharing or grouping equally.
- ✓ The 8 times table helps solve multiplication and division calculations.
- ✓ Fact families show how multiplication and division are linked.
- ✓ Arrays, bar models and equal groups help us understand multiplication and division.



PRACTICE • THINK • REASON • SOLVE PROBLEMS!



Sticky Knowledge

- Multiplication means equal groups.
- Division means sharing or grouping equally.
- The 8 times table helps solve multiplication and division calculations.
- Fact families show how multiplication and division are linked.
- Arrays, bar models and equal groups help us understand multiplication and division.