



# Multiplication

Numbers combined to give a **product**.

A product is the answer when 2 or more numbers are multiplied

$$21 \times 3 = 63$$

Diagram illustrating the multiplication equation  $21 \times 3 = 63$ . The number 21 is labeled as a Factor, 3 is labeled as a Factor, and 63 is labeled as the Product. Arrows point from the labels to the corresponding numbers in the equation.

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# Divide

To split (a number) into equal parts or groups.

$$18 \div 6 = 3$$

You can divide by sharing or grouping.

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# Equals



Equals means the **same amount**.

The symbol shows that two expressions or two values are equal.



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# Sharing

I have twenty-one cakes and I share them equally into 3 plates.  
How many cakes will be in each plate?



$$21 \div 3 = 7$$

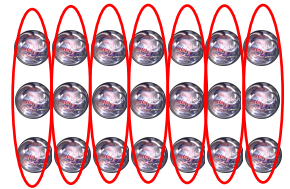
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# Grouping

I have 7 groups of 3.



A jar fits 3 marbles.  
I have 21 marbles to put away.  
How many jars will I need?



$$21 \div 3 = 7$$

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# Division Facts

The division number sentence related to times tables.

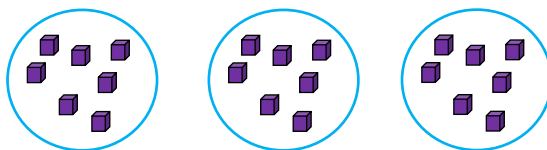
$$7 \div 7 = 1 \quad 14 \div 2 = 7$$

$$21 \div 3 = 7 \quad 28 \div 3 = 7$$

These are division facts for the 7 times tables.

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# Equal Groups

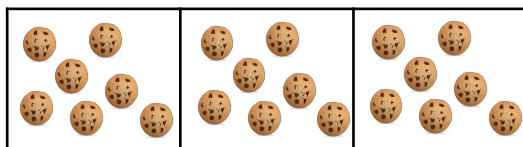


$$7 \times 3 = 21$$

There are 3 groups with the same amount in each group.  
They are equal groups.

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# Repeated Addition



$$7 \times 3 = 21$$

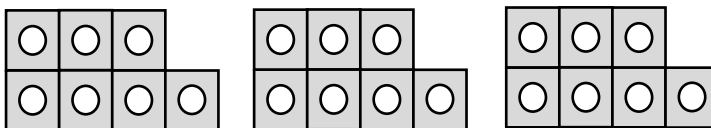
$$7 + 7 + 7$$

Adding the same number again and again.

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# Multiply

To add equal groups of numbers.

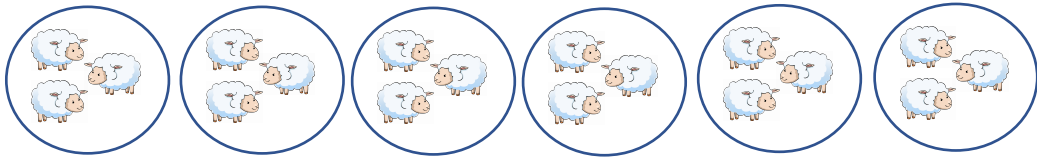


$$7 \times 3 = 21$$

There are 3 lots of 7s.

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# Lots Of..

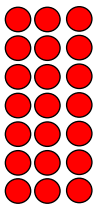


There are 7 lots of 3s.

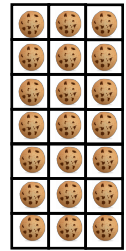
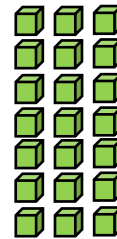
This helps us write our multiplication sentence.

7 lots of 3 show us 3, 7 times.  $3 \times 7 = 21$

# Arrays



These arrays show  
 $7 \times 3 = 21$



Arrays are objects or shapes in rows and columns.  
They help us to multiply.

# Multiplier

$$7 \times 3 = 21$$

Multiplier or factor (pointing to 7)  
 Multiplicand or factor (pointing to 3)  
 Product (pointing to 21)

The number you are multiplying by.  
We can also call this a factor!

# Division Facts

The division number sentence related to times tables.

$$7 \div 7 = 1 \quad 14 \div 2 = 7$$

$$21 \div 3 = 7 \quad 28 \div 3 = 7$$

These are division facts for the 7 times tables.

# Inverse

$$3 \times 6 = 18$$

$$18 \div 6 = 3$$

This means the opposite or reverse in maths.

We use the inverse to check our calculations.

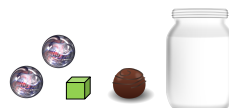
The inverse of multiplication is division.

The inverse of division is multiplication.

# Concrete Methods

Equipment that you can touch to help you solve calculations.

You could divide cubes or marbles into jars... or even chocolate!



# Multiplicand

$$7 \times 3 = 21$$

Multiplier or factor (purple arrow pointing to 7)  
Multiplicand or factor (green arrow pointing to 3)  
Product (red arrow pointing to 21)

The number that gets multiplied.  
We can also call this a factor!

# Product

$$4 \times 3 = 12$$

Multiplier or factor (purple arrow pointing to 4)  
Multiplicand or factor (green arrow pointing to 3)  
Product (red arrow pointing to 12)

The answer when two or more numbers are multiplied.

# Commutative Law

When you multiply numbers, you will get the same answer when you swap the numbers around.

$$7 \times 8 = 56$$

$$8 \times 7 = 56$$

# Short Division

A calculation where you divide the single digit into the other number, one digit at a time.

$$4 \overline{) 4951}$$

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# Long Division

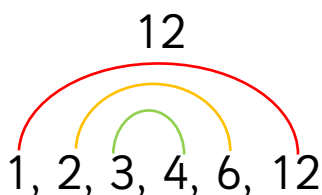
$$\begin{array}{r} 017 \\ 25 \overline{) 425} \\ \underline{0} \phantom{0} \\ 25 \phantom{0} \\ \underline{25} \phantom{0} \\ 175 \phantom{0} \\ \underline{175} \\ 000 \end{array}$$

A step by step method of dividing by a two-digit number.

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# Factors

Numbers that are multiplied to make another number.



3 and 4 are **factors** of 12 because  $3 \times 4 = 12$

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# Common Factors

When you find the **factors** of two or more numbers, you will see that some are the same. These numbers are called **common factors**.

Factors of 20: 1, 2, 4, 5, 10, 20  
 Factors of 28: 1, 2, 4, 7, 14, 28

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# Common Multiples

When you find the **multiples** of two or more numbers, you will see that some are the same. These numbers are called **common multiples**.

Multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24  
 Multiples of 4: 0, 4, 8, 12, 16, 20, 24, 28, 32

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# Prime Number

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number greater than 1 that is divisible only by itself and 1.

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# Composite Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Numbers that are not prime numbers.

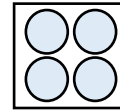
# Square Numbers

When you multiply a number by itself- the result is a **square number**.

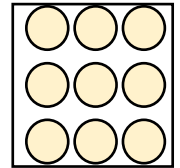
$1^2$	$1 \times 1 =$	1
$2^2$	$2 \times 2 =$	4
$3^2$	$3 \times 3 =$	9



$1^2$



$2^2$



$3^2$

# Multiples

Multiples are the numbers that appear in the number's multiplication table.

**Multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24**

We get multiples after multiplying the number by a whole number.

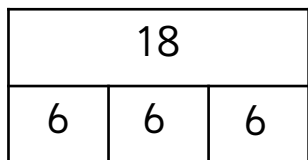
$6 \times 1 = \underline{6}$        $6 \times 2 = \underline{12}$        $6 \times 3 = \underline{18}$



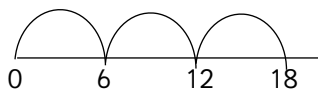
These are multiples of 6. Can you think of any more?

# Pictorial Methods

Pictures that you can see or draw to help you solve calculations.



Bar methods



Number lines



Arrays

# Distributive Law

If you didn't know  $7 \times 8$ , you could do  $5 \times 8$  and add the answer to  $2 \times 8$ .  
You would get the correct answer!

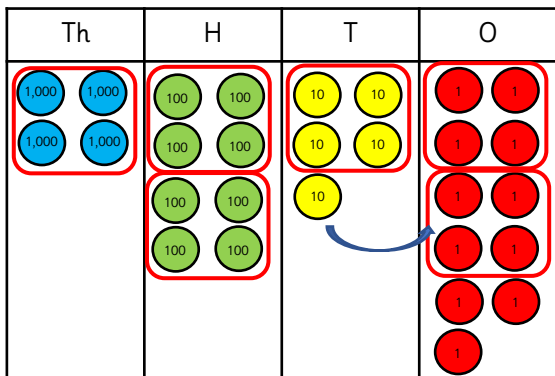
$$\begin{array}{r} 5 \times 8 = 40 \\ 2 \times 8 = 16 \\ \hline 7 \quad \quad 56 \end{array}$$

$$7 \times 8 = 56$$

I have 'distributed' (spread out) the 7 into a 5 and a 2 and multiplied them both by 8. I then add the products.

# Remainder

An amount left over after dividing.



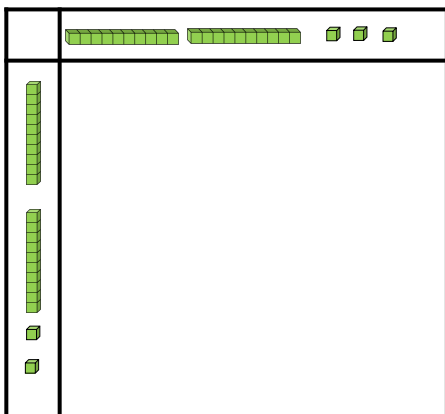
$$4,851 \div 4 =$$

	1	1	1	2	r3
4	4	8	5	1	

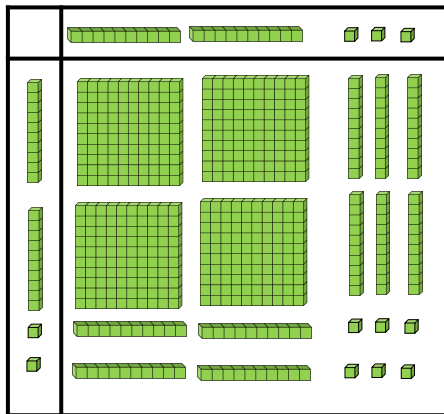
# Area Model

A method which helps to see the size scale linked to multiplying.

$$23 \times 22$$

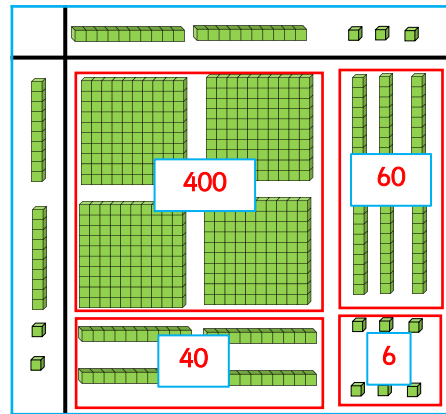


Build the length and width using the calculation.



Multiply the length by the width.

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Find the total of your area.

$$23 \times 22 = 506$$

# Long Multiplication

Long multiplication is a way to multiply large numbers.

We have multiplied 26 by 3 first of all.

We then move one place to the left.

You can use 0 as a place holder and now multiply 26 by 10.

We then add the 2 rows to find the total.

	2	6			
x	1	3			
	7	8	(26 x 3)		
	2	6	0	(26 x 20)	
	3	3	8		

1

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# Integer

25

Whole numbers such as:

23,124

250

99

1

1,000,000

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Multiplication & Division Year 5

# Multiplication

Numbers combined to give a **product**.  
A product is the answer when 2 or more numbers are multiplied

$$21 \times 3 = 63$$

Factor      Factor      Product

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Multiplication & Division Year 5

# Lots Of...

There are 7 lots of 3s.  
This helps us write our multiplication sentence.  
7 lots of 3 show us 3, 7 times.  $3 \times 7 = 21$

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Multiplication & Division Year 5

# Multiplicand

$$7 \times 3 = 21$$

Multiplier or factor      Multiplicand or factor      Product

The number that gets multiplied.  
We can also call this a factor!

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Multiplication & Division Year 5

# Divide

To split (a number) into equal parts or groups.

$$18 \div 6 = 3$$

You can divide by **sharing** or **grouping**.

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Multiplication & Division Year 5

# Arrays

These arrays show  $7 \times 3 = 21$

Arrays are objects or shapes in rows and columns.  
They help us to multiply.

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# Product

$$4 \times 3 = 12$$

Multiplier or factor      Multiplicand or factor      Product

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The symbol shows that two expressions or two values are equal.

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# Commutative Law

When you multiply numbers, you will get the same answer when you swap the numbers around.

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# Short Division

A calculation where you divide the single digit into the other number, one digit at a time.

$$4 \overline{) 4951}$$

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Multiplication & Division Year 5

# Division Facts

The division number sentence related to times tables.

$$7 \div 7 = 1 \quad 14 \div 2 = 7$$

$$21 \div 3 = 7 \quad 28 \div 3 = 7$$

These are division facts for the 7 times tables.

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# Pictorial Methods

Pictures that you can see or draw to help you solve calculations.

Bar methods      Number lines      Arrays

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Multiplication & Division Year 5

# Long Division

A step by step method of dividing by a two-digit number.

$$\begin{array}{r} 017 \\ 25 \overline{) 425} \\ \underline{0} \\ 25 \\ \underline{175} \\ 000 \end{array}$$

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Multiplication & Division Year 5

# Inverse

$$3 \times 6 = 18 \quad 18 \div 6 = 3$$

This means the opposite or reverse in maths.  
We use the inverse to check our calculations.  
The inverse of multiplication is division.  
The inverse of division is multiplication.

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# Distributive Law

If you didn't know  $7 \times 8$ , you could do  $5 \times 8$  and add the answer to  $2 \times 8$ .  
You would get the correct answer!

$$\begin{array}{r} 5 \times 8 = 40 \\ 2 \times 8 = 16 \\ \hline 7 \times 8 = 56 \end{array}$$

I have 'distributed' (spread out) the 7 into a 5 and a 2 and multiplied them both by 8. I then add the products.

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Multiplication & Division Year 5

# Factors

Numbers that are multiplied to make another number.

1, 2, 3, 4, 6, 12

3 and 4 are **factors** of 12 because  $3 \times 4 = 12$

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# Concrete Methods

Equipment that you can touch to help you solve calculations.  
You could divide cubes or marbles into jars... or even chocolate!

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# Remainder

An amount left over after dividing.

$$4,851 \div 4 =$$

Th	H	T	O
4	8	5	1

1 1 1 2 r3

4 4 8 5 1

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# Common Factors

When you find the **factors** of two or more numbers, you will see that some are the same. These numbers are called **common factors**.

Factors of 20: 1, 2, 4, 5, 10, 20  
Factors of 28: 1, 2, 4, 7, 14, 28

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Multiplication & Division Year 5

# Composite Numbers

Numbers that are not prime numbers.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
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Multiplication & Division Year 5

# Area Model

A method which helps to see the size scale linked to multiplying.

$$23 \times 22$$

Build the length and width using the calculation.      Multiply the length by the width.      Find the total of your area.

$$23 \times 22 = 506$$

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Multiplication & Division Year 5

# Common Multiples

When you find the **multiples** of two or more numbers, you will see that some are the same. These numbers are called **common multiples**.

Multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24  
Multiples of 4: 0, 4, 8, 12, 16, 20, 24, 28, 32

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Multiplication & Division Year 5

# Square Numbers

When you multiply a number by itself- the result is a **square number**.

1 <sup>2</sup>	1 x 1 = 1
2 <sup>2</sup>	2 x 2 = 4
3 <sup>2</sup>	3 x 3 = 9

1<sup>2</sup>      2<sup>2</sup>      3<sup>2</sup>

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Multiplication & Division Year 5

# Long Multiplication

Long multiplication is a way to multiply large numbers.  
We have multiplied 26 by 3 first of all. We then move one place to the left. You can use 0 as a place holder and now multiply 26 by 10. We then add the 2 rows to find the total.

2	6		
x	1	3	
-----			
7	8		(26 x 3)
2	6	0	(26 x 20)
-----			
3	3	8	

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Multiplication & Division Year 5

# Prime Number

A number greater than 1 that is divisible only by itself and 1.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
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61	62	63	64	65	66	67	68	69	70
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81	82	83	84	85	86	87	88	89	90
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# Multiples

Multiples are the numbers that appear in the number's multiplication table.

Multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24

We get **multiples** after multiplying the number by a whole number.

$$6 \times 1 = 6 \quad 6 \times 2 = 12 \quad 6 \times 3 = 18$$

These are multiples of 6. Can you think of any more?

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Multiplication & Division Year 5

# Integer

Whole numbers such as: 23, 124

25      250      99      1      1,000,000

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Year 5 – Multiplication and Division Vocabulary Assessment

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Multiplication		Divide		Equals	
Lots of		Arrays		Multiplier	
Multiplicand		Product		Commutative Law	
Short Division		Long Division		Factors	
Division Facts		Inverse		Concrete Methods	
Pictorial Methods		Distributive Law		Remainder	
Common Factors		Common Multiples		Prime Number	
Composite Numbers		Square Numbers		Multiples	
Area Model		Long Multiplication		Integer	

Year 5 – Multiplication and Division Vocabulary Assessment

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