

Templars Primary School Knowledge Organiser Year 5 Multiplication and Division

Key Vocabulary

Multiples

multiply

groups of

lots of

Multiples are basically extended times tables.
 For example, the **multiples of 4** are all the numbers that are in the 4 times table.
 4, 8, 12, 16, 20
 A number can be a multiple of a range of different numbers.
 For example, 20 is a multiple of 1, 2, 4, 5, 10 and 20.
 All numbers are multiples of 1.

Out of these numbers, the multiples of 5 are: 25, 175 and 3000 because the numbers end in a 5 or a 0.

25 32 54 175 554 3000

7135 is a multiple of 5
 8921 is not a multiple of 5

times

Factors

A **factor** is one of two or more numbers that divides a given number without a remainder.

Any given number can have a large number of factors.

A common factor is a factor of 2 or more numbers.

Factors of 6

2 6

1 3

Factors of 15

5 15

divide

share

remainder

factor

multiple

product

Square numbers

Square numbers have an odd number of factors and are the result of multiplying a whole number by itself.

The notation for squared is ²

$4^2 = 4 \times 4 = 16$

$5^2 = 25$
 $5 \times 5 = 25$

$2^2 = 4$
 $2 \times 2 = 4$

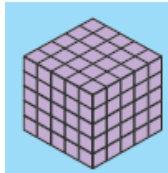
Prime Numbers

Prime numbers are numbers that only have 2 factors, 1 and itself.

2

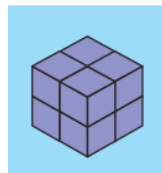
Cube numbers

A **cube number** is the result of multiplying a whole number by itself 3 times e.g. $4 \times 4 \times 4 = 64$



$$5^3 = 125$$

$$5 \times 5 \times 5 = 125$$



$$2^3 = 8$$

$$2 \times 2 \times 2 = 8$$

The notation for cube is ³

5^3 is $5 \times 5 \times 5 = 125$

Related calculations

$$8 \times 9 = 72$$

$$9 \times 8 = 72$$

$$80 \times 9 = 720$$

$$90 \times 8 = 720$$

$$72 \div 9 = 8$$

$$72 \div 8 = 9$$

$$720 \div 9 = 80$$

$$720 \div 8 = 90$$

$$7,200 \div 200$$

7,200

÷ 100

72

÷ 2

36

If we know $36 \times 5 = 180$

We also know:

$$36 \times 50 = 1,800$$

$$5 \times 360 = 1,800$$

$$500 \times 36 = 18,000$$

$$360 \times 500 = 180,000$$

Multiply by 10, 100 and 1000

Multiplying by 10, 100 and 1000

$$234 \times 1 = 234$$

HTh	TTh	Th	H	T	O
			○	○	○
			○	○	○
			○	○	○

$$234 \times 10 = 2,340$$

HTh	TTh	Th	H	T	O
		○	○	○	
		○	○	○	
		○	○	○	

$$234 \times 100 = 23,400$$

HTh	TTh	Th	H	T	O
	○	○	○		
	○	○	○		
	○	○	○		

$$234 \times 1000 = 234,000$$

HTh	TTh	Th	H	T	O
○	○	○			
○	○	○			
○	○	○			

Dividing by 10, 100 and 1000

$$123,000 \div 1 = 123,000$$

HTh	TTh	Th	H	T	O
●	●	●			
●	●	●			
●	●	●			

$$123,000 \div 10 = 12,300$$

HTh	TTh	Th	H	T	O
	●	●	●		
	●	●	●		
	●	●	●		

$$123,000 \div 100 = 1,230$$

HTh	TTh	Th	H	T	O
		●	●	●	
		●	●	●	
		●	●	●	

$$123,000 \div 1000 = 123$$

HTh	TTh	Th	H	T	O
			●	●	●
			●	●	●
			●	●	●

Multiplication

Short multiplication

$$2543 \times 7 = 17801$$

	2	5	4	3
x				7
1	7	8	0	1
1	3	3	2	1

Remember to move any regrouped digits into the next column. After the next multiplication, add the regrouped number to the answer.

Long multiplication

$$2543 \times 67 = 170381$$

		2	5	4	3
x				6	7
	1	7	8	0	1
	1	3	3	2	
1	5	2	5	8	0
1	3	2	1	8	0
1	7	0	3	8	1
1	1				

Before multiplying by the number in the tens column, remember to use zero as a placeholder because the 6 in 67 is 6 tens (60).

Division

Short division

$$152 \div 4 = 36$$

		3	8
4	1	5	2

$$15 \div 4 = 3 \text{ remainder } 3$$

Remember to regroup any remainders and move them into the next column.

With a remainder

$$2278 \div 5 = 455 \text{ r } 3$$

		4	5	5	r	3
5	2	2	7	8		

$$28 \div 5 = 5 \text{ remainder } 3$$

If your calculation has a remainder, remember to record it in the answer using the letter r.

Long division

$$136 \div 4 = 34$$

		3	4
4	1	3	6
-	1	2	0
		1	6
		-	1
			6
			0

→ 30×4

→ 4×4