



What should I already know?

- Multiplication and division facts for multiplication tables up to 12×12
- How to use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- How to recognise and use factor pairs and commutativity in mental calculations
- How to multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- How to solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

What will I know by the end of the unit?

- How to multiply a 4 digit number by a 1 digit number
- How to multiply two digits using the area method
- How to multiply a two digit number by a two digit number
- How to multiply a 3 digit number by a 2 digit number
- How to multiply a 4 digit number by a 2 digit number
- How to divide a 4 digit number by a 1 digit number
- How to divide when there are remainders

Vocabulary

Multiply	Times	Divide	Product
Groups of	Factor	Share	Prime
Lots of	Multiple	Remainder	

Investigate/Homework tasks

- Homework will be set by your teacher using google classroom
- You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home
- Additional work you could complete:
 - Find out more about the meaning of the vocabulary list using <http://www.amathsdictionaryforkids.com/>
- To challenge yourself: Answer the key questions to deepen your knowledge

Key Questions

Why is it important to set out multiplication using columns?

Explain the value of each digit in your calculation.

How do we show there is nothing in a place value column?

What do we do if there are ten or more counters in a place value column?

Which part of the multiplication is the product?

Explain the steps followed when using this multiplication method.

Look at the numbers in each question, can they help you estimate which answer will be the largest?

Explain why there is a 9 in the thousands column.

Why do we write the larger number above the smaller number?

What links can you see between these questions? How can you use these to support your answers?



What are we multiplying?
How can we partition these numbers?

Where can we see 20×20 ?
What does the 40 represent?

What's the same and what's different between the three representations (Base 10, place value counters, grid)?

Why is the zero important?

What numbers are being multiplied in the first line and in the second line?

When do we need to make an exchange?

What can we exchange if the product is 42 ones?

If we know what 38×12 is equal to, how else could we work out 39×12 ?

Why is the zero important?

What numbers are being multiplied in the first line and the second line?

When do we need to make an exchange?

What happens if there is an exchange in the last step of the calculation?

How many groups of 4 thousands are there in 4 thousands?
How many groups of 4 hundreds are there in 8 hundreds?
How many groups of 4 tens are there in 9 tens?
What can we do with the remaining ten?
How many groups of 4 ones are there in 12 ones?

Do I need to solve both calculations to compare the divisions?

If we can't make a group in this column, what do we do?

What happens if we can't group the ones equally?

In this number story, what does the remainder mean?

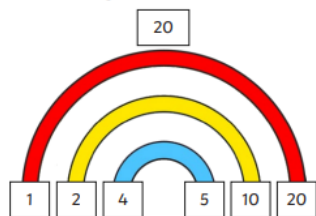
When would we round the remainder up or down?

In which context would we just focus on the remainder?

Key Information/Diagrams

Factors

A factor is a number that divides into another number exactly, without leaving a remainder.



The factors of 20 are 1, 2, 4, 5, 10 and 20.

The factor pairs are:
1 and 20
2 and 10
4 and 5

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



Prime 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

Squared² and Cubed³ Numbers

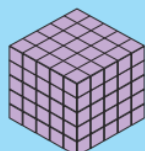


$$2^2 = 4$$

$$2 \times 2 = 4$$

$$2^3 = 8$$

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



$$5^2 = 25$$

$$5 \times 5 = 25$$

$$5^3 = 125$$

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

Related Calculations

$$8 \times 9 = 72$$

$$80 \times 9 = 720$$

$$9 \times 8 = 72$$

$$90 \times 8 = 720$$

$$72 \div 9 = 8$$

$$72 \div 8 = 9$$



Short Multiplication

$$2543 \times 7 = 17801$$

	2	5	4	3
x				7
1	7	8	0	1

1 3 3 2

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	5	2	5	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

$$136 \div 4 = 34$$

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

→ 30 × 4

→ 4 × 4



Short Division

		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.

		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**.