

Maths

Multiplication and Division

Need a coherently planned sequence of lessons to complement this resource?

Lesson Breakdown

Below is our suggestion for the most coherent and progressive sequence to teach this area of Plant Maths steps on the White Rose Maths scheme of learning although we have not aimed to mirror the exact order in which the steps are presented.

Multiples and Factors (1): Multiples

Use this comprehensive lesson pack to help teach children how to identify their knowledge of the multiplication tables to deepen their knowledge and will encourage children to work systematically, using rules to quickly identify as well as partner talk. The differentiated activity sheets allow children to focus on deepening their knowledge with a range of fluency, reasoning and problem-solving activities. By the end of the lesson, children should be confident in being able to identify the multiples of a number.

NC Statement: Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

Lesson Aim: To identify multiples of numbers.

Multiples and Factors (2): Factors

This comprehensive, teacher-made lesson pack is designed specifically to be systematic way. This lesson will build on the children's prior knowledge of its order factors of numbers. The differentiated activity sheets allow children to focus on deepening their knowledge with a range of fluency, reasoning and problem-solving activities. By the end of the lesson, children should be confident in being able to identify the factors of a number.

NC Statement: Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

Lesson Aim: To identify all of the factors of a number.

Introduction

In Year 3 Multiplication and Division, children build upon and extend their use of the formal written methods, multiplying four-digit numbers by two-digit numbers and dividing numbers up to four-digits by one-digit numbers. They express remainders as whole numbers, fractions and decimals and choose from these in order to answer questions appropriately when solving problems. The children use their multiplication tables facts to help them to solve large calculations and understand the terms factor, multiple and prime, square and cube numbers. Children use the equals sign to indicate equivalence and multiply and divide by 10, 100 and 1000 with increasing confidence, including calculations which involve decimals.

Resources

You will need standard classroom maths resources for this unit.

Multiplication and Division

Maths | Year Group | Steps to Progression Overview

The aim of this overview is to support teachers using Plant Maths to show the most coherent and progressive sequence to teach each area of maths. We also want to fully support teachers who use the White Rose Maths scheme of learning to make full use of the resources available within Plant Maths. Wherever possible, lesson packs have been matched to each of the small steps on the White Rose Maths scheme of learning.

Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Perimeter and Area		
Spring	Number: Multiplication and Division			Number: Fractions					Number: Decimals and Percentages		Consolidation	
Summer	Number: Decimals		Geometry: Properties of Shapes			Consolidation: Position and Direction		Measurement: Converting Units		Measurement: Volume		Consolidation

Divide 4 Digits by 1 Digit (With Exchanging)

	2	5	1	4
3	7	¹ 5	4	¹ 2

Aim

- To divide 4-digit numbers by 1-digit numbers with exchanging.

Success Criteria

- I can set out the written method of short division correctly.
- I begin with the place value column of the greatest value, when dividing.
- I can exchange remainders.

Remember It

Use your knowledge of the multiplication tables to help you solve these calculation ladders:

START	16	
Halve it	= 8	
add 17	= 25	
divide by 5	= 5	
Multiply by 20	= 100	
Quarter it	= 25	
Subtract 9	= 16	

START	14	
Add 13	= 27	
divide by 9	= 3	
multiply by 12	= 36	
Quarter it	= 9	
Multiply by 6	= 54	
Subtract 40	= 14	

Did you notice anything about these calculation ladders?
Can you make your own calculation ladder like this for a friend to solve?

Dividing with Exchanging

Here is a division calculation. Let's look at how we can set it out using the written method of short division.

$$4856 \div 4$$

Dividend



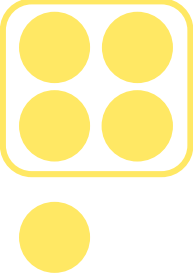
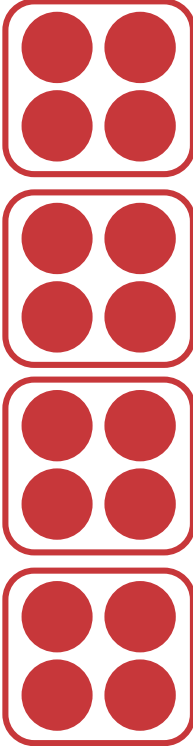
Divisor

The divisor is written outside the frame.

The dividend is written inside the frame.

4	4	8	5	6

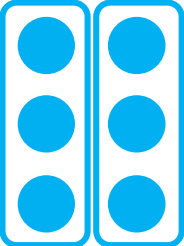

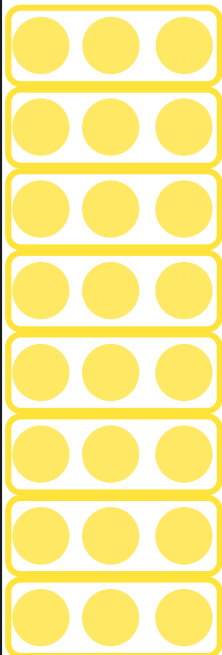
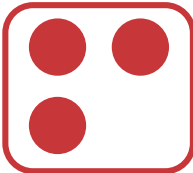
$$4856 \div 4 = 1214$$

1000s	100s	10s	1s
			

We have used short division to calculate that $4856 \div 4 = 1214$.

	1	2	1	4
4	4	8	5	¹ 6

$$6543 \div 3 = 2181$$

1000s	100s	10s	1s
			

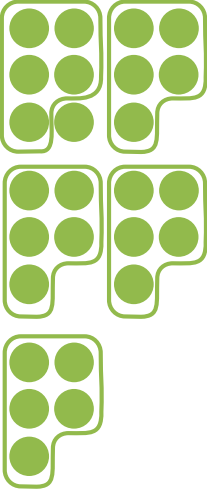
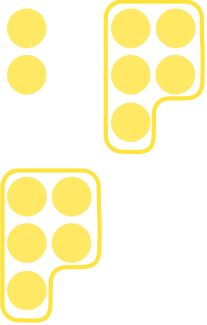
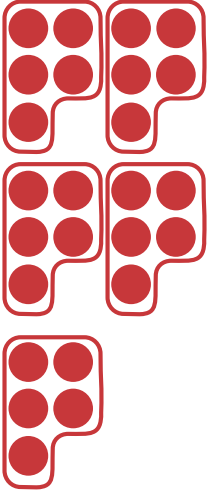
Finally, the ones.

There is **1** group of 3 ones.
We write the digit 1 in the ones column above the line.

We have used short division to calculate that $6543 \div 3 = 2181$.

	2	1	8	1
3	6	5	² 4	3

$$2625 \div 5 = 525$$

1000s	100s	10s	1s
● ●			

Finally group the ones.

There are **5** groups of 5 ones. We write the digit 5 in the ones column.

We have used short division to calculate that $2625 \div 5 = 525$.

		5	2	5
5	2	6	¹ 2	² 5

$$2505 \div 3 = 835$$

1000s	100s	10s	1s
● ●			

Finally, group the ones.

There are **5** groups of 3 ones. We write the digit 5 in the ones column.

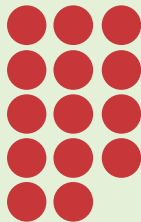
We have used short division to calculate that $2505 \div 3 = 835$.

		8	3	5
3	2	5	¹ 0	¹ 5

Exchanging Correctly

Bianca has completed this division calculation using short division. Is she correct? Explain how you know.

	1	1	0	0 ²
7	7	7	1	¹ 4



I don't think I can make a group of 7 from 1 ten or 4 ones.



Bianca can exchange the ten for ten ones. Then she can make 2 groups of 7 in the ones column.

Multiply 4 digits by 1 digit

Dividing 4-Digits by 1-Digit (With Exchanging)

2) Use the answers remaining from question 1 to write your own division questions which give the number as an answer.

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Dividing 4-Digits by 1-Digit (With Exchanging)

To divide 4-digit numbers by 1-digit numbers

Dividing 4-Digits by 1-Digit (With Exchanging)

1) Colour each d
Use your Plac

2) Use the answers remaining from question 1 to write your own 4 digit division questions which give the number as an answer.

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3)

a) Use yo
digits i

8	2	4

8	7	5

9	1	5



6

3)

a) Use y
the n

2	1	8

8	3	3

6	5	4

Dividing 4-Digits by 1-Digit (With Exchanging)

To divide 4-digit numbers by 1-digit numbers

Dividing 4-Digits by 1-Digit (With Exchanging)

To divide 4-digit numbers by 1-digit numbers

1) Colour each division to match with the correct answer. Use different colours for each question.
Use your Place Value Grid to help you if you need to.

9	9	8	1

5	3	1	5

5	4	0	6

5	4	9	8

2	1	1	3

2	1	1	0

7	5	6	0

3	9	3	6

3	9	4	2

312 553

997 109

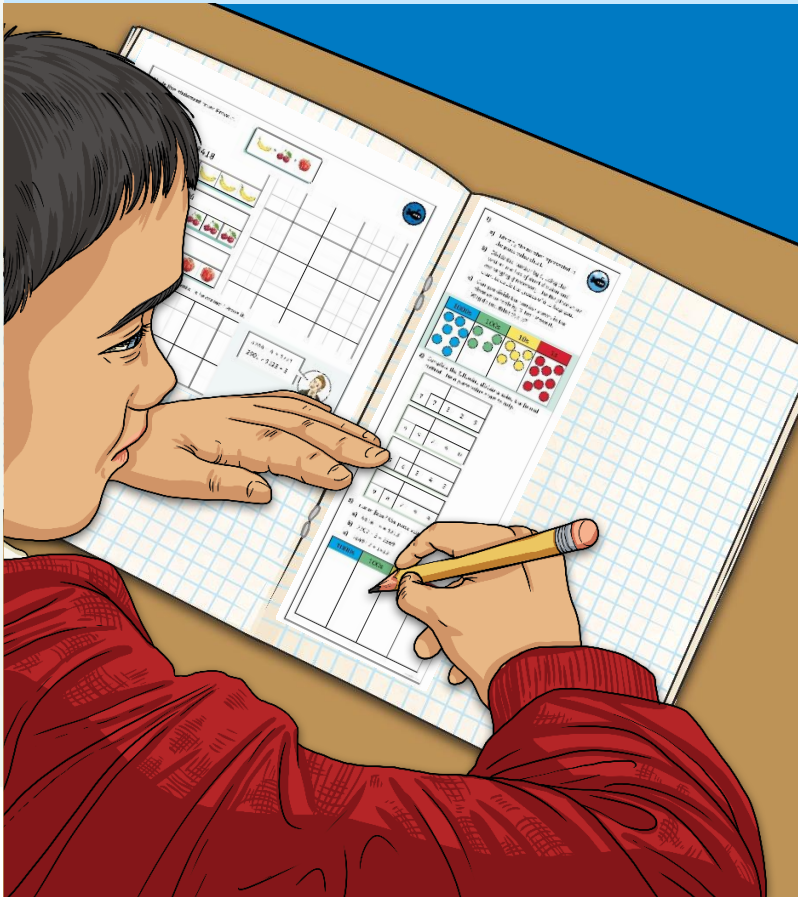
569 131

813 801

631 314

Diving into Mastery

Dive in by completing your own activity!



1) Noah has 1200 bananas. Use the place value chart to help you.

2) Is this statement true or false? Explain your answer.

3) Choose the correct answer. Can you explain your answer?

1) a) Identify the number represented in the place value chart.
 b) Divide the number by 6, using the written method of short division and exchanging if necessary. Use the place value chart to circle the groups of 6 to help you.
 c) Can you divide the number shown in the place value table by 3, too? Prove it. Why do you think this is?

1000s	100s	10s	1s
4	2	3	5

2) Complete the following divisions using the formal method. Use a place value chart to help.

7	7	3	2	9	4	9	2	4	0
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5	6	3	4	5	9	8	2	4	4
---	---	---	---	---	---	---	---	---	---

3) True or false? Use place value counters to help you.

a) $4616 \div 4 = 1213$

1000s	100s	10s	1s

b) $7707 \div 3 = 2569$

1000s	100s	10s	1s

c) $9849 \div 7 = 1407$

1000s	100s	10s	1s

Find the Missing Digits

Can you find the missing digits in this short division calculation?
There is more than one correct answer!

	<input type="text"/>	4	<input type="text"/>	0
5	<input type="text"/>	3	0	<input type="text"/>

	<input type="text" value="1"/>	4	<input type="text" value="6"/>	0
5	<input type="text" value="7"/>	² 3	³ 0	<input type="text" value="0"/>

	<input type="text" value="0"/>	4	<input type="text" value="6"/>	0
5	<input type="text" value="2"/>	² 3	³ 0	<input type="text" value="0"/>

Aim



- To divide 4-digit numbers by 1-digit numbers without any exchanges.

Success Criteria

- I can set out the written method of short division correctly.
- I begin with the place value column of the greatest value, when dividing.
- I can exchange remainders.

