

Calculation Policy

March 2020

for Nursery to Year 6

Progression within in each area of calculation follows the programme of study in the 2014 Jersey Mathematics Curriculum and includes written strategies and visual representations for each operation from the Foundation Stage to Year 6 in line with the *Maths No Problem* scheme of work.

Policy created March 2020

Review Date July 2021

Kim Banks

This Calculation Policy sets out the methods used at St Lawrence School to help our pupils develop their Mathematical understanding. The methods set out meet the requirements of the Jersey Curriculum for Mathematics and are designed to give pupils a consistent progression of learning in calculations across the school, taking into account the *Maths No Problem* Scheme followed by St Lawrence School.

Pupils are taught strategies to develop and strengthen their mental agility on a daily basis, both within the *Maths No Problem* lessons and the Fluency sessions. Pupils also need to be able to apply written calculation skills in order to:

- Represent work that has been carried out practically;
- Support, record and explain mental calculations;
- Keep track of steps taken with a longer task.

This Calculation Policy shows some of the methods that pupils will be taught within the Foundation Stage and then each year group. Pupils are taught a range of different methods, in line with the *Maths No Problem* scheme of work and are encouraged to choose and use a method that they know will get them to the correct answer as efficiently as possible. Pupils are encouraged to choose their preferred method to solve calculations.

Concrete, Pictorial, Abstract Approach

One of the key principles behind the Singapore Maths approach and Maths Mastery is based on the concrete, pictorial, abstract approach. This approach identifies three steps (or representations) that are necessary for pupils to develop an understanding of different concepts.

1. Concrete Representation

Pupils are first introduced to an idea or skill using real objects. In division, for example, this might be done by separating apples amongst children. This is a 'hands on' approach and all classrooms have a wide range of practical resources available for pupils to use.

2. Pictorial Representation

Pupils are encouraged to relate their concrete understanding to pictorial representations. These representations may be a diagram or a picture of the Mathematical problem.

3. Abstract Representation

This is the symbolic stage – the pupils use Mathematical symbols to represent problems, for example $12 \times 2 = 24$.

Whilst this Calculation Policy aims to show the Concrete / Pictorial / Abstract approach to the different calculations, it is not always noted further up the year groups. However, it is expected that the Concrete / Pictorial / Abstract approach is used continuously in all new learning and calculations, even when not noted.

Foundation Stage - Addition

Early Learning Goal for Mathematics: Numbers

Pupils count reliably with numbers from one to twenty, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

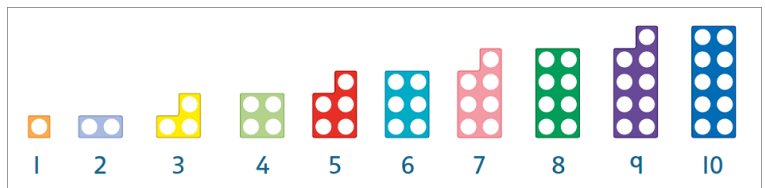
Key Vocabulary

add, more, and, make, sum, total, altogether, double, one more, two more etc., How many more to make ?, How many more is ... than ... ?

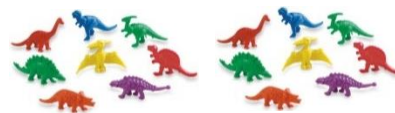
In the Foundation Stage, pupils should be developing their concept of the number system through the use of concrete materials and pictorial representations. They should experience practical calculation opportunities using a wide variety of equipment such as small world toys, counters, cubes etc. Pupils are encouraged to develop ways of recording calculations using pictures etc. Games and songs are used to develop understanding of the vocabulary associated with addition.

Method 1 – use a range of practical resources to develop counting skills, and then develop their understanding of the concept of addition through counting activities.

To use Numicon and counting objects to count out aloud and reinforce one-to-one counting skills.



How many dinosaurs are there?
What about if I give you two more? How many are there now?



Method 2: - to be able to combine groups of objects using concrete apparatus.



How many spots altogether on the domino tiles?



To use multilink cubes to represent Numberblock combinations.

Method 3 – to use number lines to count along.

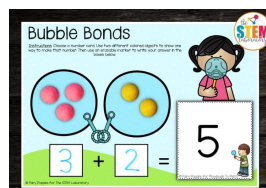


Method 4 – to be able to store a large number mentally and count on from there.

$$5 + 3 = 8$$



Method 5 – to begin to use the part-whole model to recognise different ways of making numbers and to develop knowledge of number bonds.



Mental Strategies

To develop a mental image of the number system
To understand the value of a number.
To be able to count forwards.

Year 1 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 1: Number – Addition and Subtraction

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

Key Vocabulary

number bonds, add, more, plus, make, sum, total, altogether, equals, put together, distance between, difference between, more than, double, is the same as, one more, ten more etc., How many more to make ...?, How much more is ...? How many more is ... than ...?

In Year 1, pupils will learn different methods of addition, including those outlined below. Pupils will encounter the part-whole diagram and begin to lay the foundations of inverse addition. Concrete and Pictorial Representations are used to develop understanding at this stage. Pupils will be taught to use simple bar modelling strategies to represent word problems.

Method 1 – Addition by using number bonds.

Lesson 1

Add by Using Number Bonds

In Focus
How many swans are there altogether?
How can we find out?

Let's Learn
Add by Using Number Bonds

part 2 + part 3 = whole 5

2 + 3 = 5 is an addition equation.
We read it as two plus three equals five.

* is read as plus.
It means to add.

2 + 3 equals 5.

We read = as equals.

There are 5 swans altogether.

Addition Within 10 Page 34

Lesson 2

Add by Making 10

In Focus
How many sandwiches are there?

Let's Learn
Add by Making 10

$6 + 8 = ?$

$6 + 2 = 8$
 $2 + 8 = 10$
 $10 + 4 = 14$

make 10

$6 + 8 = 14$
There are 14 sandwiches.

Addition and Subtraction Within 20 Page 35

Method 2 – Addition by adding ones.

Lesson 3

Add by Adding Ones

In Focus
How many candles are there altogether?

Let's Learn
Add Ones

$12 + 6 = 18$
There are 18 candles altogether.

$12 + 6 = 18$
 $10 + 2 = 12$
 $10 + 8 = 18$

Addition and Subtraction Within 20 Page 38

Method 3 – Addition by counting on.

Lesson 2

Add by Counting On

In Focus
There are 6 buttons in the box.
How many buttons are there in total?

Let's Learn
Add by Counting On

$6 + 3 = ?$

Count on 3 steps from 6.

$6 + 3 = 9$
There are 9 buttons in total.

Addition Within 10 Page 37

Lesson 1

Add by Counting On

In Focus
What are the different ways to add?
There are 11 buns altogether.

Let's Learn
Add by Counting On

$8 + 3 = ?$

Count on 3 steps from 8.

$8 + 3 = 11$
There are 11 buns altogether.

$11 + 3 = ?$
Why do we count on from 11?

$11 + 3 = 14$

Addition and Subtraction Within 20 Page 32

Mental Strategies

- Know that addition can be carried out in any order (commutative).
- Add one and two-digit numbers to twenty, including zero.
- Number bonds to twenty.
- Doubles of numbers up to and including double ten.
- Adding ten to a single digit number.
- Identify one more than a given number.

Year 2 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 2: Number – Addition and Subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two-digit number and ones, a two-digit number and tens, two two-digit numbers, adding three one-digit numbers
 - show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
 - recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Key Vocabulary

add, addition, more, plus, make, sum, total, altogether, score, double, one more, two more, a hundred more etc., How many more to make ... ?, How many more is ... than ... ?, How much more is ... ?

In Year 2, pupils will learn a range of different methods for addition including number bond diagrams as well as the standard column method. Pupils will use concrete objects and pictorial representations to add a two-digit number and ones, a two-digit number and tens, two two-digit numbers and three one-digit numbers.


The following methods will be amongst those used:

Method 1 – Addition by counting and adding tens

Lesson 3

Simple Adding

In Focus



How many grapes do they have in all?

Let's Learn

Add 19 and 20.

Method 1 Count on in tens from 19.
 $19 + 20 = 39$

Method 2 Add the tens.
 $10 + 20 = 30$
 $9 + 30 = 39$
 $19 + 20 = 39$


Addition and Subtraction Page 28

Method 2 - Addition by counting on

Lesson 13

Addition of Three Numbers

In Focus



Can you add to find out how many flowers there are in total?

Let's Learn

1 Add 7, 3 and 2.

Method 1 Make 10. 7 and 3 make 10.
 $7 + 3 + 2 = 10 + 2 = 12$

Method 2 Add by counting on.
 $7 + 3 + 2 = 12$

2 Add 9, 9 and 8.
 $9 + 9 = 18$
 $18 + 8 = 26$


Addition and Subtraction Page 48

Method 3 – Addition using the column method

Lesson 6

Adding with Renaming

In Focus



How many cupcakes are there now?

Let's Learn

Add 15 and 18.

Use **10** to help you add.

Step 1 Add the ones.
 5 ones + 8 ones = 13 ones
 Regroup the ones.
 13 ones = 1 ten and 3 ones

tens	ones
1	5
+	1 8
1	3

Addition and Subtraction Page 34

Step 2 Add the tens.
 1 ten + 1 ten + 1 ten = 3 tens

tens	ones
1	5
+	1 8
1	3
+	2 0
3	3

$15 + 18 = 33$

Work in pairs.
 Make a correct addition equation.
 $\square + \square = 3$
 Use 5 different digits.

What you need:

Activity Time

Guided Practice

1 Add.
 (a) $15 + 28 = \square$ (b) $11 + 19 = \square$

2 Add.
 (a) $26 + 18 = \square$ (b) $13 + 29 = \square$

tens	ones
2	6
+	1 8
3	4

tens	ones
1	3
+	2 9
3	2

Complete Worksheet 6 • Page 42 – 45

Addition and Subtraction Page 35

Mental Strategies

Know that addition is the inverse of subtraction.

Add two numbers mentally, including a two-digit number and units, a multiple of ten to a two-digit number, two two-digit numbers and three one-digit numbers.

Use knowledge of inverse to check calculations and solve missing number problems.

Use knowledge of number bonds to ten to calculate number bonds to one hundred.

Count on in ten from any given number, eg: $19 - 29 - 39$ etc.

Year 3 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 3: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Key Vocabulary

Add, increase, total, plus, sum, more, altogether, column addition, estimate, inverse, double, near double, one more, ten more, one hundred more, How many more to make ... ?, How many more is ... than ... ?, How much more is ... ?

Method 1 – Addition using the column method

Lesson 5

Simple Adding

In Focus

432 flowers 521 flowers

How many flowers are there altogether?

Let's Learn

Add 432 and 521.

Use **10** to help you add.

Step 1 Add the ones.
2 ones + 1 one = 3 ones

h	t	o
4	3	2
+	5	2
		3

Addition and Subtraction Page 30

Step 2 Add the tens.
3 tens + 2 tens = 5 tens

h	t	o
4	3	2
+	5	2
	5	3

Step 3 Add the hundreds.
4 hundreds + 5 hundreds = 9 hundreds

h	t	o
4	3	2
+	5	2
9	5	3

432 + 521 = 953

There are 953 flowers altogether.

Addition and Subtraction Page 40

Lesson 7

Adding with Renaming

In Focus

2	7	9	6
+	0	0	0
			0

Make two numbers using 2 7 9 6.

Add them to get a total.

How many different totals less than 1000 can you get?

Let's Learn

Holly:

6	9	2
+	7	0

Elliott:

7	9	2
+	6	0

Ruby:

2	9	7
+	6	0

Who has the greatest number as a total?

Can you tell without calculating?

Addition and Subtraction Page 46

Method 2 – Addition by counting on

Lesson 2

Simple Adding

In Focus

There were 213 books in the bookcase.

How many books were there after Hannah put 4 more books in it?

Let's Learn

Add 213 and 4.

Method 1 Count on from 213.

211	212	213	214	215	216	217	218	219	220
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

213 + 4 = 217

Addition and Subtraction Page 12

Method 2 Add the ones.

213 + 4 = 217

There were 217 books in the bookcase.

Guided Practice

- Add 121 and 4. $121 + 4 = \square$
- Add 3 and 492. $3 + 492 = \square$
- $345 + 4 = \square$
- $6 + 810 = \square$

Complete Worksheet 2 - Page 29 - 30

Addition and Subtraction Page 15

Method 3 – Addition by counting on in tens

Method 2 Add the tens, add

119 + 80 = 199

There were 199 pupils altogether.

2 Add 213 and 40.

Method 1 Count on in tens from 213.

$213 + 40 = 253$

Method 2 Add the tens.

$213 + 40 = 253$

213 + 40 = 253

Addition and Subtraction Page 35

Mental Strategies

Add numbers mentally, including a three-digit number and a single-digit number, a three-digit number and a multiple of ten and a three-digit number and a multiple of one hundred.

Estimate the answer to a calculation and use inverse operations to check answers.

To know pairs that total one thousand (multiples of one hundred).

To calculate ten or one hundred more than any given number.

Year 4 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 4: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

add, addition, more, plus, increase, sum, total, altogether, score, double, near double, tens boundary, hundreds boundary, thousands boundary, inverse.

In Year 4, pupils will be taught to add with numbers up to 10 000. They will use the column method for addition and they will also learn mental methods. Pupils will be encouraged to think about when the most appropriate time is to use each method. They will use the methods taught to solve word problems, for example, visualising the problems using the bar model.

Method 1 – Addition using number discs to support column addition.

2 Use number discs

$$136 + 245 = \square$$

$$\begin{array}{r} 136 \\ + 245 \\ \hline \end{array}$$

Add ones.
Add tens.
Add hundreds.

$$\begin{array}{r} 136 \\ + 245 \\ \hline 381 \end{array}$$

add ones
add tens
add hundreds
sum

3 Use column addition

$$\begin{array}{r} 136 \\ + 245 \\ \hline \end{array}$$

The sum is \square .

Addition and Subtraction Within 10 000 Page 49

Method 2 – Addition using mental strategies.

Adding Using Mental Strategies

In Focus

Scoreboard

Name	Level	Score
Hannah	4	3041

Lesson 6

I need to get 9 more points to get to Level 5.



How many points does need to get to the next level?

Let's Learn

- Add 9 to 3041.
 $3041 + 9 = \square$
 make 10
 $3041 + 9 = 3040 + 10$
 $3041 + 9 = 3050$

needs 3050 points to get to the next level.

- Find the sum of 98 and 4142 by adding mentally.

$$98 + 4142 = \square$$

make 100

$$98 + 4142 = 100 + 4140 = 4240$$

Addition and Subtraction Within 10 000 Page 62

Calculate mentally.



3



Find the total price by adding mentally.

$$1999 + 299 = 2000 + 298$$

$$\text{make } 2000 = 2298$$

The total price is £2298.

Is there another way?
 $2000 + 300 = 2300$



Guided Practice

Add mentally.

- $3041 + 9 = \square + 10 = \square$
- $599 + 4712 = 600 + \square = \square$
- $2998 + 499 = \square + \square = \square$
- $4375 + 25 = \square + \square = \square$

Complete Worksheet 6 – Page 33

Addition and Subtraction Within 10 000 Page 63

Mental Strategies

Add numbers mentally, including a four-digit number and multiples of one thousand.

Use knowledge of doubles to derive related facts (eg: $15+16=31$ because $15+15=30$ and $30+1=31$).

Know number pairs that total one thousand (multiples of ten).

Estimate the answer to a calculation and use inverse operations to check answers.

Year 5 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 5: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract whole numbers with more than 4 digits, including using written methods (column addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

efficient written method, add, addition, more, plus, increase, sum, total, altogether, score, tens boundary, hundreds boundary, thousands boundary, units boundary, tenths boundary, inverse.

In Year 5, pupils will be exploring addition of numbers to 1 000 000. They will begin the unit by using simple strategies to add, such as counting on. They will then focus on adding within 1 000 000. Pupils will use multiple key methods, such as the column method and number bonds to add numbers. Pupils will have access to concrete materials throughout, improving their visualisation and mental skills.

Method 1 – Addition by counting on.

Lesson 1

Counting On to Add

In Focus

There are 10 tickets on each sheet.
A booklet has 10 sheets, so contains 100 tickets.
A stack of 10 booklets contains 1000 tickets.

A stadium has a seating capacity of 62 689.
So far, 10 329 tickets have been sold.
How many more tickets are available?

10 329 + = 62 689
How can we figure out the value ?

Let's Learn

1 $10\ 329 + 50\ 000 =$

Count on.

Whole Numbers: Addition and Subtraction Page 54

Method 2 – Addition using the column method.

Lesson 5

Adding within 1 000 000

In Focus

In one district, there were approximately 16 000 male students and 17 000 female students.

	16 000
	17 000

The numbers have been rounded to the nearest 1000.

What is the estimated total number of students?

Let's Learn

1 $16\ 000 + 17\ 000 =$

	16 000	
+	17 000	
<hr/>		
	16 000	
	+ 17 000	
<hr/>		
	33 000	

Whole Numbers: Addition and Subtraction Page 74

Mental Strategies

Add numbers mentally with increasingly large numbers (eg: $10,162 + 2300 = 12,462$).

Mentally add tenths (eg: $0.2 + 0.6 = 0.8$) and one-digit numbers and tenths (eg: $8 + 0.3 = 8.3$).

Use number bonds to one hundred knowledge to calculate complements to one using hundredths (eg: $0.83 + 0.17 = 1$).

Use rounding to check answers to calculation and determine, in the context of a problem, levels of accuracy.

Year 6 - Addition

Jersey Curriculum for Mathematics – Statutory Requirements for Year 6: Number – Addition, Subtraction, Multiplication and Division

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using a written method of multiplication.
- divide numbers up to 4 digits by a two-digit whole number using a written method of division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Key Vocabulary

order of operations, column addition, add, in total, answer, tens boundary, hundreds boundary, thousands boundary, millions boundary, units boundary, tenths boundary, hundredths boundary, decimal place, inverse.

Pupils in Year 6 will use previous methods taught to solve addition problems. Pupils will be exploring the four operations, in combination and in isolation. They will solve expressions involving brackets, exponents, multiplication, division, addition and subtraction.

Examples of using mixed operations:

Using Mixed Operations

Lesson 2

In Focus

Use the six numbers (once each), any operations $+$, $-$, \times , \div and at most one pair of brackets.

1 2 3 4 5 6

Can you obtain each of the answers 1, 2, 3, 4 and so on in this way?

Let's Learn

1 wrote this expression:
 $6 + 5 - 1 - 2 - 3 - 4$
 $6 + 5 - 1 - 2 - 3 - 4 = 1$

When there are only $+$ and $-$, calculate from left to right.

$6 + 5 = 11$

2 wrote this expression:
 $3 \times 4 + 2 - (6 + 5 + 1)$
 $3 \times 4 + 2 - (6 + 5 + 1)$
 $= 3 \times 4 + 2 - 12$
 $= 12 + 2 - 12$
 $= 14 - 12$
 $= 2$

Perform the calculations in () first.

For $+$ and $-$, calculate from left to right.

Multiply before adding.

$3 \times 4 + 2 - (6 + 5 + 1) = 2$

Four Operations on Whole Numbers Page 32

3 wrote this expression:
 $2 \times 3 \times 6 \div 4 - 5 - 1$
 $2 \times 3 \times 6 \div 4 - 5 - 1$
 $= 6 \times 6 \div 4 - 5 - 1$
 $= 36 \div 4 - 5 - 1$
 $= 9 - 5 - 1$
 $= 3$

For \times and \div , calculate from left to right.

Subtract from left to right.

Can you make an expression that has the value of 4? How about the values of 5 or 6?

$2 \times 3 \times 6 \div 4 - 5 - 1 = 3$

4 made a different expression that has the value of 3.
 $(1 + 2) \div 3 \times 4 + 5 - 6$

Step 1: Perform the calculation in the brackets first.
 Step 2: Multiply or divide whichever comes first.
 Step 3: Add or subtract whichever comes first.

$(1 + 2) \div 3 \times 4 + 5 - 6 = 3$

$1 + 2 = 3$
 $3 \div 3 = 1$
 $1 \times 4 = 4$
 $4 + 5 = 9$
 $9 - 6 = 3$

Four Operations on Whole Numbers Page 33

Mental Strategies

Add numbers mentally with increasingly large numbers (eg: $10,162 + 2,300 = 12,462$).

Add decimal numbers mentally (up to two decimal places).

Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Foundation Stage - Subtraction

Early Learning Goal for Mathematics: Numbers

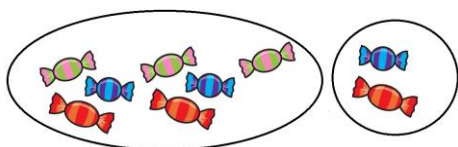
Pupils count reliably with numbers from one to twenty, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

Key Vocabulary

take away, leave, How many are left ?, How many have gone ?, one less, two less etc., How many fewer is ... than ... ?, difference between.

In the Foundation Stage, pupils should be developing their concept of the number system through the use of concrete materials and pictorial representations. They should experience practical calculation opportunities using a wide variety of equipment such as small world toys, counters, cubes etc. Pupils are encouraged to develop ways of recording calculations using pictures etc. Games and songs are used to develop understanding of the vocabulary associated with subtraction.

Method 1 – Using a range of practical resources, pupils should develop their understanding of subtraction as taking away through counting activities.

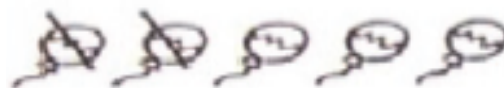


I had nine sweets and I ate two. How many do I have left ?

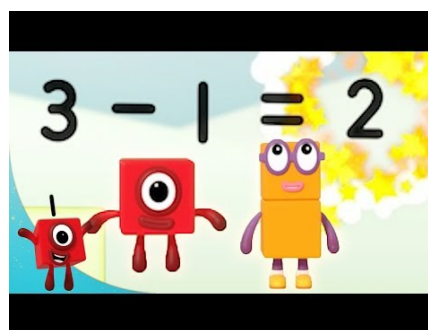
Method 2 – to use number lines to count back.



Method 3 – to listen to a subtraction story and use objects or drawings to represent the story, taking objects away, or crossing drawings out to visualise the subtraction.



Method 4 – to use multilink cubes to represent the Numberblocks characters as they demonstrate the concept of subtraction.



Mental Strategies

To develop a mental image of the number system

To count backwards using familiar number rhymes (eg: *Ten Green Bottles*).

Count backwards from different starting points.

Year 1 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 1: Number – Addition and Subtraction

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

Key Vocabulary

Subtract, take away, minus, leave, How many fewer is ... than ... ?, How much less is ?, half, halve, How many are left / left over ?, How many are gone ?, one less, two less, ten less etc., equals, is the same as, count back, difference between.

Method 1 – Subtraction by crossing out.

Lesson 1

Subtract by Crossing Out

In Focus

At first, there are 7 ladybirds.

Then, 2 ladybirds fly away.

How many ladybirds are still on the leaf?

Let's Learn

Subtract by Crossing Out

1 $7 - 2 = 5$
5 ladybirds are left.

$7 - 2$ is equal to 5.

$7 - 2 = 5$ is a subtraction equation. We read it as seven minus two equals five.

− is read as minus. It means to subtract.

Subtraction Within 10 Page 50

Method 2 – Subtraction by using number bonds.

Lesson 2

Subtract by Using Number Bonds

In Focus

How many boys do not wear glasses? There are 4 boys. 3 boys wear glasses.

Let's Learn

Subtract by Using Number Bonds

1 $4 - 3 = 1$
whole part part
1 boy does not wear glasses.

2 $7 - 5 = 2$
2 boats are not red.

How many boats are not red?

Subtraction Within 10 Page 52

Method 3 – Subtraction by counting back.

Lesson 3

Subtract by Counting Back

In Focus

There are 8 books in all. 3 books are on the table.

How many books are there in the bag?

Let's Learn

Subtract by Counting Back

$8 - 3 = ?$

Count back 3 steps from 8.

$8 - 3 = 5$
There are 5 books in the bag.

Subtraction Within 10 Page 54

Method 4 – Subtraction using inverse operations.

Lesson 6

Addition and Subtraction

In Focus

Write addition and subtraction equations.

There are 7 apples. 5 apples are red and 2 apples are green.

Let's Learn

How many apples are there altogether?
 $5 + 2 = 7$ or $2 + 5 = 7$

How many apples are red?
 $7 - 2 = 5$

How many apples are green?
 $7 - 5 = 2$

part part whole
5 2 7

These are addition and subtraction equations. They make up a family of addition and subtraction facts.

Subtraction Within 10 Page 60

Mental Strategies

Subtract one and two-digit numbers to twenty, including zero.

Know that subtraction is not commutative and that the larger number must always come first.

Use knowledge of number bonds to ten and twenty to reason ($9 + 1 = 10$ so $10 - 9 = 1$ and $10 - 1 = 9$).

Year 2 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 2: Number – Addition and Subtraction

Pupils should be taught to:

- solve problems with addition and subtraction:
- using concrete objects and pictorial representations, including those involving numbers, quantities and measures
- applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
 - a two-digit number and ones, a two-digit number and tens, two two-digit numbers, adding three one-digit numbers
 - show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
 - recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Key Vocabulary

Subtract, minus, leave, How many are left / left over ?, How many less is ... than ... ?, How much fewer is ...?, difference between, half, halve, equals, sign, is the same as, partition, inverse, count back, one less, two less, ten less etc.

In Year 2, pupils are taught a range of methods to subtract including subtracting ones and subtracting multiples of 10 in the column method and using their knowledge of number bonds to solve subtraction problems. Pupils will use bar modelling as a visual model to solve subtraction calculations in word problems.

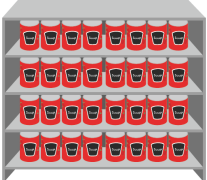
Method 1 – Subtraction using the column method.

Method 2 – Subtraction by counting back.

Subtracting with Renaming

Lesson 12


In Focus



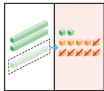
There are 32 cans of soup. 16 cans of soup were sold. How many cans of soup are left?

Let's Learn

Subtract 16 from 32.

Use  to help you add.

Step 1 Regroup 1 ten into 10 ones. Subtract the ones. 12 ones - 6 ones = 6 ones

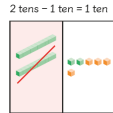


tens	ones
2	12
- 1	- 6
1	6

12 - 6 = 6

Addition and Subtraction Page 46

Step 2 Subtract the tens. 2 tens - 1 ten = 1 ten



tens	ones
2	12
- 1	- 6
1	6

32 - 16 = 16

Guided Practice

1 Subtract.

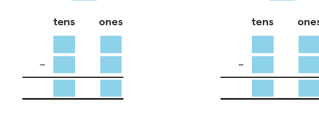
(a) $24 - 16 =$

(b) $36 - 19 =$

2 Subtract.

(a) $26 - 17 =$

(b) $33 - 15 =$




Complete Worksheet 12 • Page 65 - 68

Addition and Subtraction Page 47

Simple Subtracting

Lesson 7

In Focus



How many balloons are there left?

Let's Learn

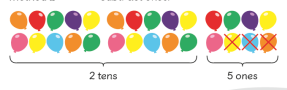
Subtract 3 from 28.

Method 1 Count back from 28.

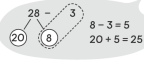
21	22	23	24	25	26	27	28	29	30
----	----	----	----	----	----	----	----	----	----

$28 - 3 = 25$

Method 2 Subtract ones.



$28 - 3 = 25$



Addition and Subtraction Page 36

Mental Strategies

Know that subtraction is the inverse of addition.

Use knowledge of inverse to check calculations and solve missing number problems.

Subtract numbers mentally, including subtracting units from a two-digit number, a multiple of ten from a two-digit number, a two-digit number from another two-digit number.

Recall and use subtraction facts to twenty fluently.

Use knowledge of number bonds to one hundred (multiples of ten) to reason ($40 + 60 = 100$ so $100 - 60 = 40$ and $100 - 40 = 60$).

Year 3 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 3: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Key Vocabulary

Leave, subtract, less, minus, column subtraction, inverse, exchange, How many are left / left over ?, difference between, How more fewer is ... than ... ?, How much less is ... ?, equals, is the same as, sign, multiples of tens and hundreds.

Method 1 – Subtraction by counting back.

Method 2 – Subtraction using the column method.

Simple Subtracting

Lesson 11

In Focus

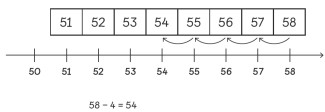
Sam had 58 cookies.
He ate 4 cookies.
How many cookies did he have left?



Let's Learn

Subtract 4 from 58.

Method 1 Count back from 58.



Addition and Subtraction Page 61

Simple Subtracting

Lesson 15

In Focus

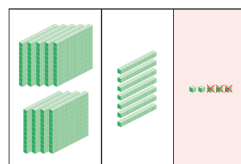
There were 975 beads in a jar.
Emma used 723 beads to make some necklaces.
How many beads were left in the jar?



Let's Learn

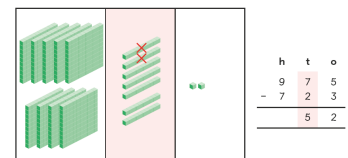
Subtract 723 from 975.

Step 1 Subtract the ones.
5 ones - 3 ones = 2 ones

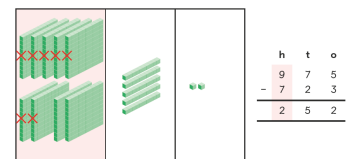


Addition and Subtraction Page 69

Step 2 Subtract the tens.
7 tens - 2 tens = 5 tens



Step 3 Subtract the hundreds.
9 hundreds - 7 hundreds = 2 hundreds



975 - 723 = 252

There were 252 beads left in the jar.

Addition and Subtraction Page 70

Using Models

Lesson 22

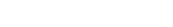
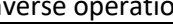
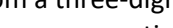
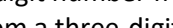
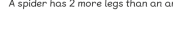
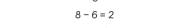
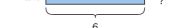
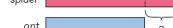
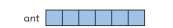
In Focus



How many more legs does a spider have than an ant?

Let's Learn

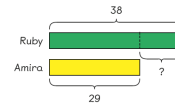
1 A spider has 8 legs.
An ant has 6 legs.



Addition and Subtraction Page 85

Method 3 – Subtraction using bar models.

2 Ruby has 38 stickers.
Amira has 29 stickers.
How many more stickers does Ruby have than Amira?



Ruby has more stickers than Amira.



Guided Practice

Solve using models.

- In a class, there are 13 boys and 19 girls.
How many more girls than boys are there?
- Emma has 98 seashells.
Charles has 23 more seashells than Emma.
How many seashells does Charles have?
- Elliott collects 48 pressed flowers.
He collects 16 fewer pressed flowers than Hannah.
How many pressed flowers does Hannah collect?
- There are 71 women at a concert.
There are 29 more women than men at the concert.
How many men are there at the concert?

Complete Worksheet 22 · Page 69 – 70

Addition and Subtraction Page 86

Mental Strategies

Subtract numbers mentally, including a single-digit number from a three-digit number, a multiple of ten from a three-digit number, a multiple of a hundred from a three-digit number.

Estimate the answer to a calculation and use inverse operations to check answer.

Year 4 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 4: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract numbers with up to 4 digits using written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

Subtract, subtraction, minus, decrease, leave, How many are left / left over ?, difference between, How many fewer is ... than ... ?, How much less is ... ?, equals, the same as, column subtraction, multiples of a thousand, inverse.

In Year 4, pupils will be taught to subtract with numbers up to 10 000. They will use the column method for subtraction and they will also learn mental methods for subtraction. Pupils will be encouraged to think about when the most appropriate time is to use each method. They will use the methods taught to solve word problems, visualising the problems using the bar model

Method 1 – Subtraction by using place value discs to support column subtraction.

Lesson 11

Subtracting with Renaming

In Focus
Ravi invented a way to subtract.
5321 – 1248

Ravi's method

$$\begin{array}{r} 5321 \\ - 1248 \\ \hline 4073 \end{array}$$

Check: $4073 + 1248 = 5321$

It seems correct. Is it?

Let's Learn

1 Subtract.
5321 – 1248

Instead of subtracting 1248, we need to subtract 1258. Why?

$$\begin{array}{r} 5321 \\ - 1258 \\ \hline 4063 \end{array}$$

Check: $4063 + 1258 = 5321$

It seems to work. Does it work all the time?

Guided Practice

Find the difference.

- $42 - 24 = 52 -$ _____
- $435 - 127 = 445 -$ _____
- $4293 - 2825 =$ _____

Complete Worksheet 11 – Page 40

Method 2 – Subtraction using mental strategies.

Lesson 14

Subtracting Using Mental Strategies

In Focus
Sam tries to subtract these numbers mentally.
How can he do it?

2001 – 189

$$\begin{array}{r} 1999 \\ - 189 \\ \hline 1810 \end{array}$$

Let's Learn

1 2001 – 189

1999 – 189 = 1810
2001 – 189 = 1812

2 2001 – 189

1801 – 200 = 1601
1601 + 11 = 1612

2001 – 189 = 1801 + 11 = 1812

Addition and Subtraction Within 10 000 Page 83

Method 3 – Subtraction using bar models.

Lesson 15

Solving Word Problems

In Focus
A baker made 2750 chocolate cookies and 1638 vanilla cookies.
He sold 3195 cookies altogether.
How many cookies did he have left?

Let's Learn

1 Understand the problem

Who?	baker
What?	cookies

Make a plan

Find the total number of cookies he made.

Then, subtract the number of cookies sold.

Carry out the plan

$$\begin{array}{r} 2750 + 1638 = 4388 \\ \hline \end{array}$$

The baker baked 4388 cookies.

$$4388 - 3195 = 1193$$

He had 1193 cookies left.

Cookies sold	3195
Cookies left	1193
Cookies baked	4388

$$\begin{array}{r} 3195 \\ + 1193 \\ \hline 4388 \end{array}$$

Guided Practice

There were 6000 books for sale at a book fair.
3419 books were sold on the first day of the fair and
2268 books were sold on the second day.
How many books were left at the end of the second day?

Complete Worksheet 15 – Page 47 – 48

Mental Strategies

Subtract numbers mentally, including multiples of one thousand from a four-digit number.
Use number pairs that total one thousand (multiples of ten) to calculate subtraction (eg: 1000 – 300 = 700).
Estimate the answer to a calculation and use inverse operations to check answers.

Year 5 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 5: Number – Addition and Subtraction

Pupils should be taught to:

- add and subtract whole numbers with more than 4 digits, including using written methods (column addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

Efficient written method, subtract, subtraction, minus, decrease, difference between inverse, decimals, units and tenths boundary, column subtraction, exchange.

In Year 5, pupils will be exploring subtraction of numbers to 1 000 000. They will use simple strategies to subtract, such as counting back. Pupils will then focus on subtracting within 1 000 000. Pupils will use multiple key methods, such as the column method and number bonds to subtract numbers. Pupils will have access to concrete materials throughout, improving their visualisation and mental skills.

Method 1 – Subtraction by counting back.

Counting Backwards to Subtract

In Focus

I am counting back 300 000.

I am counting back 30 000.

I am counting back 3000.

Lesson 2

Let's Learn

1 The number is 546 203.
Count back by 100 000s.

446 203 346 203 246 203

546 203, 446 203, 346 203, 246 203

546 203 - 300 000 =

Whole Numbers: Addition and Subtraction Page 59

Lesson 10

Subtracting within 1 000 000

In Focus

0 1 2 3 4 5 6 7 8 9

Four pupils used the digit cards to make 5-digit numbers with the smallest difference.

9 8 4 2 0
- 8 7 5 3 1

8 0 1 2 3
- 7 9 6 5 4

9 0 1 2 3
- 8 7 6 5 4

7 0 1 2 3
- 6 9 8 5 4

Who has the smallest difference?

Whole Numbers: Addition and Subtraction Page 98

Method 2 – Subtraction using the column method.

Mental Strategies

Subtract increasingly large numbers mentally (eg: $12,654 - 1,341 = 11,213$).

Mentally subtract tenths (eg: $0.7 - 0.5 = 0.2$) and one-digit whole numbers and tenths (eg: $8 - 0.3 = 7.7$).

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Year 6 - Subtraction

Jersey Curriculum for Mathematics – Statutory Requirements for Year 6: Number – Addition, Subtraction, Multiplication and Division

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using a written method of multiplication.
- divide numbers up to 4 digits by a two-digit whole number using a written method of division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Key Vocabulary

Order of operations, subtract, decrease, difference, inverse, decimals, units, tenths and hundredths boundary, column subtraction, exchange.









In Year 6, pupils will continue to use methods taught in previous years to subtract including the column subtraction method. In addition, pupils will be taught a range of strategies to solve word problems, for example, using the bar model method.

Method 1 – Subtraction using bar modelling.

Solving Word Problems

Lesson 14

In Focus

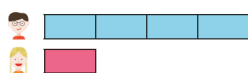
At first,  and  had the same amount of money. After  gave  £732,  had 4 times as much money as  had.
How much money did  and  have altogether?

Let's Learn

Draw the model for 'after'.



after



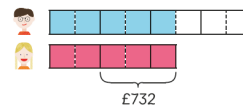
What does the model for 'before' look like?



Four Operations on Whole Numbers

Page 75

before



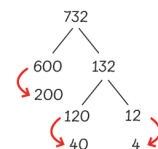
$$\begin{aligned} 3 \text{ units} &= \text{£}732 \\ 1 \text{ unit} &= \text{£}732 \div 3 \\ &= \text{£}244 \end{aligned}$$

10 units =

 and  had £ altogether.

Four Operations on Whole Numbers

Page 76



$$\begin{array}{r} \\ 3 \overline{) 732} \\ \underline{- 600} \\ 132 \\ \underline{- 120} \\ 12 \\ \underline{- 12} \\ 0 \end{array}$$

Mental Strategies

Subtract increasingly large numbers mentally (eg: $12,654 - 1,341 = 11,213$).

Subtract decimal numbers mentally (up to two decimal places).

Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Foundation Stage - Multiplication

Early Learning Goal for Mathematics: Numbers

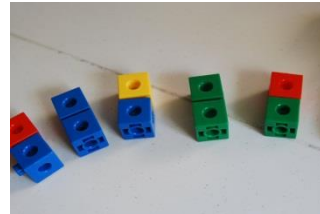
Pupils solve problems, including doubling, halving and sharing.

Key Vocabulary

Group, lots of, double.

In the Foundation Stage, pupils will experience equal groups of objects. The focus at this stage should be on solving practical problems with a 'hands on' approach.

Method 1 – Pupils will count groups of the same number of objects and add them together. They will learn about grouping in practical contexts and through pictorial representations.



Method 2 – Pupils will solve simple problems involving doubling. Pupils will be encouraged to explore a range of concrete materials to show a number and then repeat the number to show doubling.



Mental Strategies

Develop a mental image of the number system.

Understand the value of a number.

Count in 2s, 5s and 10s.

Explore number patterns on a number line and on a one-hundred square (eg: 2s, 5s and 10s).

Year 1- Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 1: Multiplication and Division

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Key Vocabulary

Odd, even, count in twos, fives, tens (forwards from and backwards from), How many times ?, lots of, groups of, once, twice, five times, ten times, multiple of, times, multiply, multiply by, array, row, column, double.

In Year 1, pupils will be taught the foundations of equal groupings, repeated addition, arrays and doubling. Pupils will be taught to apply that knowledge to solve word problems.

Method 1 – Multiplication by making and then adding equal groups.

Method 2 – Multiplication by making equal rows.

Making Equal Groups

Lesson 1

In Focus

Who made equal groups?

Let's Learn

- Each plate has 4. These are equal groups.
- These are not equal groups.

Multiplication Page 30

Adding Equal Groups

Lesson 2

In Focus

are in equal groups.
How many are there altogether?
How can you tell?

That means every tray has the same number of .

Let's Learn

- There are 4 trays. Each tray has 5. 4 trays of 5 = 20, 4 groups of 5 = 20, 4 fives = 20. There are 20 altogether.

Multiplication Page 39

Making Equal Rows

Lesson 3

In Focus

How many are on the tray?

Let's Learn

- 3 cookies in 1 row, 6 cookies in 2 rows, 12 cookies in 4 rows, cookies in 6 rows.
- There are 10 toy soldiers in one row. 2 tens = 20. There are 20 toy soldiers altogether.

Multiplication Page 42

Method 3 – Multiplication by making doubles.

Making Doubles

Lesson 4

In Focus

What happens when we double ?

Let's Learn

- Double 2 = 4 (2 twos)
- Double 5 = 10 (2 fives)
- What happens when the beanstalk doubles its height?

Multiplication Page 44

Activity Time

Work in pairs.

What you need: [dice icon] [red square icon]

- Roll the dice. Show your partner the correct number of [red square icon].
- Can your partner show you double that number?
- Take turns to repeat (1) and (2).

2 threes equal 6.

Guided Practice

- Double 7 = [] sevens = []
- Double 4 = [] fours = []
- What is double 8?

Complete Worksheet 4 • Page 44

Multiplication Page 45

Mental Strategies

Count forwards and backwards in multiples of 2s, 5s and 10s.

Recall doubles of numbers up to and including ten.

Year 2 - Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 2: Number – Multiplication and Division

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Key Vocabulary


Odd, even, twos, fives, tens, threes, lots of, groups of, once, twice, three times, five times, ten times, multiple of, times, multiply, multiply by, repeated addition, array, row, column, double.

Method 1 – Multiplication as equal groups.

Lesson 1

Multiplication as Equal Groups

In Focus



How many cupcakes are there altogether?

Let's Learn

$4 \times 3 = 12$ is read as 4 times 3 equals 12.

There are 4 groups. Each group has 3 cupcakes.

$3 + 3 + 3 + 3 = 12$
 $4 \text{ threes} = 12$
 $4 \text{ groups of } 3 = 12$
 $4 \times 3 = 12$


There are 12 cupcakes altogether.

Activity Time


Work in pairs.

1 Show equal groups using fewer than 30 counters.


Example



4 + 4 + 4 = 12
 3 fours = 12
 3 groups of 4 = 12
 $3 \times 4 = 12$

2 Your partner will count the number of .

3 Switch sides and repeat 1 and 2.

What you need: 

Multiplication of 2, 5 and 10 Page 52

Method 2 – Multiplication using 2, 5 and 10 times tables


- understanding the operation of multiplication as repeated addition.

Lesson 8

Multiplying by 2, 5 and 10


In Focus

$5 \times 2 = 10$ $2 \times 5 = 10$

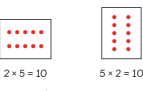


Who is correct? Why?

Let's Learn

1 
 $5 \times 2 = 10$ $2 \times 5 = 10$
 5×2 is equal to 2×5 .

2 How many dots are there? $5 \times 2 = 2 \times 5$















$2 \times 5 = 10$ $5 \times 2 = 10$
 2×5 is equal to 5×2 .

Multiplication of 2, 5 and 10 Page 73






Guided Practice






1 Multiply using the dot diagrams.






(a)  $3 \times 5 =$   \times  $=$  






(b)  $3 \times 2 =$   \times  $=$  

2 Multiply.

(a) $4 \times 5 =$   \times  $=$  

$5 \times 4 =$   \times  $=$  

(b) $8 \times 2 =$   \times  $=$  

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


Complete Worksheet 8 • Page 98 – 101
 Multiplication of 2, 5 and 10 Page 74

Method 3 – Solving word problems involving multiplication using concrete objects and pictorial representatives. Children will be taught various methods that could be used to solve word problems – counting one by one, counting in twos and multiplying by 2. Pupils should know all methods are acceptable but that the multiplication method is the most efficient as they can find the answer quickly, particularly if they have memorised their multiplication facts.

Lesson 10

Solving Word Problems








In Focus



Emma buys 3 boxes of croissants. How many croissants does she buy altogether?

Let's Learn

1 $2 \times 3 = 6$
 Emma buys 6 croissants altogether. There are 3 groups of 2.

2 Sam uses 5 toothpicks to make each .
 He makes 6 .
 How many toothpicks does Sam use in all?
 $5 \times 6 =$   \times  $=$  

Each' means 'one'. Each has 5 toothpicks.
 Multiply 5 by 6.

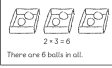
Multiplication of 2, 5 and 10 Page 77

Activity Time

Work in groups of 4.

Make three multiplication stories. Draw pictures to show your stories.


Example





There are 3 boxes. Each box has 2 balls.
 $2 \times 3 = 6$
 There are 6 balls in all.

What does "=" mean?

Guided Practice

1 Each bag holds 5 apples. How many apples are there in 3 bags? 

2 Amira has 7 pies. She cuts each pie into 10 slices. How many slices of pie are there in all? 

3 A bicycle has 2 wheels. How many wheels do 4 bicycles have? 

Complete Worksheet 10 • Page 104 – 108
 Multiplication of 2, 5 and 10 Page 78

Mental Strategies

Count forwards and backwards in multiples of three.
 Know the 2s, 5s and 10s times tables (in and out of order).
 Reognise odd and even numbers.

Year 3 - Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 3: Number – Multiplication and Division

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Key Vocabulary

Multiply, times, groups of, equal groups of, multiple of, multiplied by, estimate, inverse, grid multiplication, expanded column multiplication, partition, commutative, associative, product.

Method 1 – Multiplication using times tables.

Children are familiar with 2s, 5s and 10s. In Year 3, children learn 3s, 4s, and 8s times tables.

Method 2 – Multiplication using pictorial representations.

Pupils are taught the relationship between multiplication and division.

Lesson 2

Multiplying by 3

In Focus

2 rows of 3
 $2 \times 3 = 6$

If we know $2 \times 3 = 6$, how can we tell what 3×3 is?

Let's Learn

1 $2 \times 3 = 6$
 $3 \times 3 = 6 + 3$

2 $3 \times 3 = 9$
 $4 \times 3 = 9 + 3$

Multiplication and Division Page 96

Lesson 10

Multiplying and Dividing

In Focus

Put 4 or 5 cherries on each cake.
Can we make a family of multiplication and division equations?

Let's Learn

$20 \div 4 = 5$
 $5 \times 4 = 20$

$20 \div 5 = 4$
 $4 \times 5 = 20$

We can make a family of multiplication and division equations.

Multiplication and Division Page 117

Method 3 – Multiplication using the column grid.

Multiplying with Regrouping

Lesson 5

In Focus

This is how Hannah did 47×4 .
Is she correct?

	h	t	o
x		2	7
		4	4
	1	8	8

Let's Learn

1 This is 47.

Step 1 Multiply the ones by 4.

	2 tens	t	o
x		2	7
		4	4
		8	8

7 ones $\times 4 = 28$ ones
28 ones = 2 tens + 8 ones

Step 2 Multiply the tens by 4.

	4 tens	t	o
x		2	7
		4	4
	1	8	8

$47 \times 4 = 188$

Hannah is correct.

Further Multiplication and Division Page 147

2 Use Hannah's method to find the product of 23 and 8.

Step 1

	t	o
x	2	3
	8	8
	1	6

3 ones $\times 8 = 24$ ones
24 ones = 2 tens + 4 ones

Step 2

	h	t	o
x		2	3
		8	8
	1	6	4

$23 \times 8 = 184$

The product of 23 and 8 is 184.

2 tens $\times 8 = 16$ tens
16 tens + 2 tens = 18 tens

Guided Practice

Multiply.

(a) $39 \times 2 = \square$

	3	9
x		2

(b) $3 \times 25 = \square$

	2	5
x		3

(c) $4 \times 28 = \square$

(d) $27 \times 8 = \square$

Complete Worksheet 5 • Page 121

Further Multiplication and Division Page 148

Mental Strategies

Count forwards and backwards in multiples of 4, 8, 50 and 100.

Know the 3, 4 and 8 times tables (in and out of order).

Connect the 2, 4 and 8 times tables through doubling.

Use knowledge of place value to calculate multiplication (eg: $2 \times 2 = 4$, $2 \times 20 = 40$, $2 \times 200 = 400$)

Year 4 - Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 4: Number – Multiplication and Division

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12×12
- 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using a written layout.
- 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.

Key Vocabulary

Multiply, multiplied by, product, short multiplication, partition, distributive law, commutative, groups of, multiply, times, multiples, inverse.


In Year 4, pupils will learn how to multiply and divide by 6, 7, 9, 11 and 12. Pupils will be taught how to calculate multiplication equations using the multiplication facts that they know. They will be taught the difference between sharing and grouping as well as the commutative law in multiplication.

Method 1 – Multiplication using times tables (6s, 7s, 9s, 11s and 12s).

Method 2 – Multiplication using bar modelling.

Multiplying by 6 Lesson 1

In Focus



How many flowers are there altogether?

Let's Learn


- 1 group of 6
 $1 \times 6 = 6$
- 2 groups of 6
 $2 \times 6 = 12$
- 3 groups of 6
 $3 \times 6 = 18$
- 4 groups of 6
 $4 \times 6 = 24$

There are 24 flowers altogether.

Multiplication and Division Page 96

Multiplying and Dividing by 11 and 12 Lesson 11

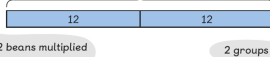
In Focus



Show 2×12 using the beans.

Let's Learn

- Making 2 groups of 12



12 beans multiplied 2 times $2 \times 12 = 24$

2 groups

We can also write $12 \times 2 = 24$.

Putting 24 beans into 2 equal groups

$24 \div 2 = 12$ Each group has 12 beans.

Putting 24 beans into groups of 12

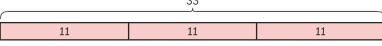
$24 \div 12 = 2$ There are 2 groups.

Multiplication and Division Page 127

2 This is a family of multiplication and division facts.

$2 \times 12 = 24$
 $12 \times 2 = 24$
 $24 \div 2 = 12$
 $24 \div 12 = 2$

3 Use 33 beans to make 3 groups.



33

11 11 11

3 groups

11 multiplied 3 times $3 \times 11 = 33$

11 multiplied 3 times $11 \times 3 = 33$

Put in 3 groups. $33 \div 3 = 11$

Put in groups of 11. $33 \div 11 = 3$

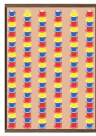
Multiplication and Division Page 128

Method 3 – Multiplication using the column method (short multiplication).

Multiplying 2-Digit Numbers Lesson 7

In Focus

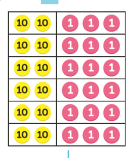
A café in New York uses cups and saucers in their interior design.



How many sets of cups and saucers are there?

Let's Learn

1 $6 \times 23 = ?$

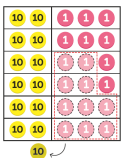


$6 \times 23 = 23 \times 6$

$\begin{array}{r} 23 \\ \times 6 \\ \hline \end{array}$

Further Multiplication and Division Page 356

Multiply the ones.

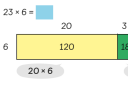


Multiply the tens then add.

$\begin{array}{r} 123 \\ \times 6 \\ \hline 738 \end{array}$

$23 \times 6 = 138$

2 $23 \times 6 = ?$



$20 \times 6 = 120$

$3 \times 6 = 18$

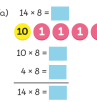
$23 \times 6 = 120 + 18 = 138$

Further Multiplication and Division Page 359

Guided Practice

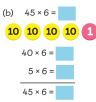
- Multiply.

(a) $14 \times 8 = ?$




$10 \times 8 = ?$
 $4 \times 8 = ?$
 $14 \times 8 = ?$

(b) $45 \times 6 = ?$

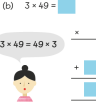


$40 \times 6 = ?$
 $5 \times 6 = ?$
 $45 \times 6 = ?$
- Multiply.

(a) $18 \times 6 = ?$

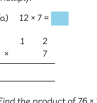


(b) $3 \times 49 = ?$

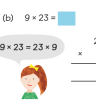


$3 \times 49 = 49 \times 3$
- Multiply.

(a) $12 \times 7 = ?$



(b) $9 \times 23 = ?$



$9 \times 23 = 23 \times 9$
- Find the product of 76×2 .

Complete Worksheet 7 – Page 111 – 112

Further Multiplication and Division Page 130

Mental Strategies

Know all times tables up to and including 12×12 (by the end of Year 4).

Recognise and use factor pairs (eg: factor pairs for numbers up to and including 10).

Know that $TU \times 5$ is $TU \times 10$ then divide by 2 (eg: $18 \times 5 = (18 \times 10) \text{ divided by } 2 = 90$).

Year 5 - Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 5: Number – Multiplication and Division

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non- prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- multiply numbers up to 4 digits by a one- or two-digit number using a written method, including long multiplication for two-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using a written method of division and interpret remainders appropriately for the context. Use a calculator to reinforce results.
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Key Vocabulary

Composite numbers, prime number, prime factor, cube number, square number, derive, factor pairs, formal written method, times, multiply, multiplied by, multiple of, product, short multiplication, partition, long multiplication, scaling, decimal place, units, tenths and hundreds.

In Year 5, pupils are taught to multiply 3- and 4-digit numbers by single- and double-digit numbers. Pupils are taught to find and define multiples and factors and common factors. Pupils work with prime numbers and determine what makes a number prime or composite. Pupils work with square and cube numbers before moving on to multiplying by 10, 100 and 1000. When multiplying, pupils are encouraged to use a variety of methods, including number bonds, column methods and the grid method. Number bonds are used to represent multiplicative word problems. Pupils then move on to multiply by 2-digit numbers before beginning to divide by 10, 100 and 1000.

Method 1 – Multiplication using the column method.

Multiplying 4-Digit Numbers Lesson 10

In Focus

A shopping mall organises a contest.

Guess the number of jelly beans.

Each jar will contain 2718 jelly beans but don't tell anyone!

We will prepare 4 jars like this.

Let's Learn

1 $2718 \times 4 =$

$$\begin{array}{r} 3000 \times 4 = 8000 \\ 700 \times 4 = 2800 \\ 10 \times 4 = 40 \\ 8 \times 4 = 32 \\ \hline 2718 \times 4 = 10872 \end{array}$$

2 $2718 \times 4 =$

$$\begin{array}{r} 2718 \\ \times 4 \\ \hline 32 \\ 2800 \\ + 8000 \\ \hline 10872 \end{array}$$

2718 × 4 = 10872

Estimate: 3 thousand × 4 = 12 thousand

3 $2718 \times 4 =$

$$\begin{array}{r} 2718 \\ \times 4 \\ \hline 72 \\ 2718 \\ \hline 672 \\ 2718 \\ \hline 10872 \end{array}$$

Method 2 – Multiplication using the grid method.

Method 3 – Multiplication using bar models.

Multiplying a 2-Digit Number by a 2-Digit Number Lesson 13

In Focus

How many seats are there in this theatre?

Let's Learn

1 There are 28 rows. Each row consists of 26 seats.

$28 \times 26 = 400 + 160 + 120 + 48 = 728$

There are 728 seats.

Multiplying 4-Digit Numbers Lesson 9

In Focus

The distance between City B and City C is 4 times the distance between City A and City B. How can we work out the distance between City A and City C?

Let's Learn

1 $1022 \times 4 =$

City A to City B: 1022 miles

City B to City C: 4088 miles

Mental Strategies

- Recognise and calculate factor pairs for any number.
- Use times table knowledge to derive multiples of any number.
- Establish whether a number is a prime number (up to 100) or a composite number and recall prime numbers up to 19.
- To know what a square number is and recall all square numbers up to and including 144.
- To know what a cube number is and recall the first five cube numbers.

Year 6 - Multiplication

Jersey Curriculum for Mathematics – Statutory Requirements for Year 6: Number – Addition, Subtraction, Multiplication and Division

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using a written method of multiplication.
- divide numbers up to 4 digits by a two-digit whole number using a written method of division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

Common factors, multiples, prime, formal written method, multiply, multiplied by, multiple of, product, short and long multiplication, partition, scaling, decimal place, units, tenths and hundredths.

Method 1 – Multiplication using number bonds.

Method 2 – Multiplication using the column method.

Lesson 6

Multiplying by 2-Digit Numbers

In Focus
Each block of flats consists of 114 flats.
How many flats are there in 12 identical blocks?
How many flats are there in 24 identical blocks?

Let's Learn

1 $114 \times 12 =$ $114 \times 24 =$

$114 \times 10 = 1140$ $114 \times 20 = 2280$
 $114 \times 2 = 228$ $114 \times 4 = 456$
 $114 \times 12 = 1368$ $114 \times 24 = 2736$

I can also use 114×12 to find 114×24 .

Four Operations on Whole Numbers Page 45

Lesson 7

Multiplying by 2-Digit Numbers

In Focus
How many millilitres of milk are there in 12 similar bottles?

Let's Learn

1 $12 \times 568 =$

$10 \times 568 = 5680$

Four Operations on Whole Numbers Page 49

Lesson 7

$2 \times 568 = 1136$
 $10 \times 568 = 5680$
 $2 \times 568 = 1136$
 $12 \times 568 = 6816$

2 $12 \times 568 =$

568
 $\times 12$
 1136
 $+ 5680$
 6816

Estimate by calculating 10×600 .

Four Operations on Whole Numbers Page 50

Method 3 – Multiplication by breaking apart the numbers.

Lesson 3

Multiplying by 2-Digit Numbers

In Focus
How much apple juice is there in 20 bottles like this one?

Let's Learn

1 $414 \times 10 =$

$414 \times 10 = 4000 + 100 + 40 = 4140$
 $414 \text{ tens} = 4140$

Four Operations on Whole Numbers Page 35

2 $414 \times 20 =$

Method 1
 $414 \times 10 = 4140$
 $414 \times 20 = 4140 + 4140 = 8280$

Method 2
 $414 \times 20 = 414 \times 2 \times 10$
 $= 828 \times 10 = 8280$

3 $1414 \times 20 =$

Method 1
 $1414 \times 20 = 20000 + 8280 = 28280$

Method 2
 $1414 \times 10 = 14140$
 $1414 \times 20 = 14140 \times 2 = 28280$

Method 3
 $1414 \times 20 = 1414 \times 2 \times 10$
 $= 2828 \times 10 = 28280$

$1000 \times 20 =$

$414 \times 20 = 8280$

Four Operations on Whole Numbers Page 36

Mental Strategies

Use scaling to solve decimal number problems as whole number problems using the rule *the number of decimal digits in the question is the same as the number of decimal digits in the answer.*

Identify common factors, common multiples and prime numbers.

Use common factors to simplify fractions mentally.

Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Foundation Stage - Division

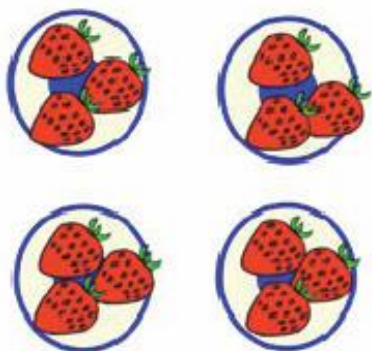
Early Learning Goal for Mathematics: Numbers

Pupils solve problems, including doubling, halving and sharing.

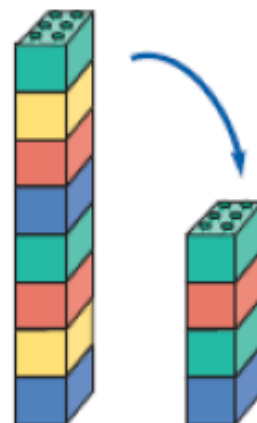
Key Vocabulary

Halve, half, share, share equally, groups

Method 1 – Pupils experience early division by sharing objects and counting how many in each group.



Method 2 – Pupils are taught to solve problems including halving and sharing using objects (concrete representation).



Mental Strategies

Develop a mental image of the number system.

Understand the value of a number.

Be able to solve verbal number stories involving halving and sharing.

Year 1 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 1: Multiplication and Division

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

Key Vocabulary

Halve, share, share equally, groups, equal groups of, divide, divided by, left, left over

In Year 1, pupils will be taught how to divide even numbers equally into groups and then to be able to determine how many objects will be included in each group in order to share equally. Pupils will be learning about making halves and quarters before moving on to making the connection between fractions and division

Method 1 – Division by grouping equally.

Grouping Equally

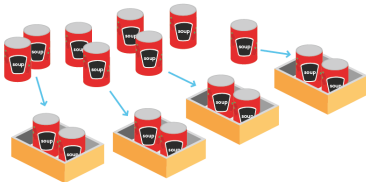
In Focus



Emma puts 2 cans of tomato soup into a box.
How many boxes does she need for all the cans?

Let's Learn

- 1 There are 8 cans.

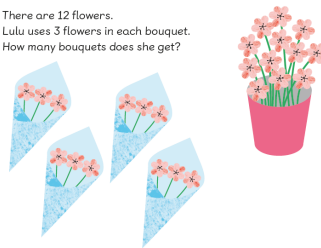


There are 4 boxes of 2 cans.

Division Page 50

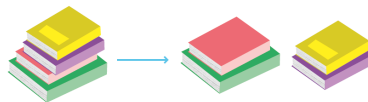
Lesson 1

- 2 There are 12 flowers.
Lulu uses 3 flowers in each bouquet.
How many bouquets does she get?



She gets 4 bouquets.

- 3 There are 4 books.
Hannah puts 2 books in each pile.
How many piles of books does she get?



She gets 2 piles of books.

Division Page 51

Method 2 – Division by sharing equally.

Sharing Equally

In Focus

There are 6 cookies.
Each child takes the same number of cookies.
How many cookies does each child get?



Let's Learn

- 1 Each child takes one cookie.



Each child takes one more cookie.

No cookies are left.

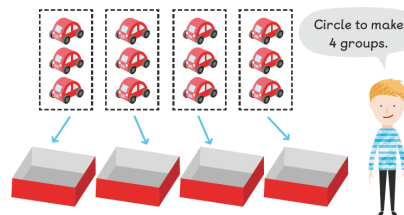


Each child gets 2 cookies.

Division Page 53

Lesson 2

- 2 There are 12 toy cars.
Put the toy cars equally into 4 boxes.
How many toy cars are there in each box?



There are 3 toy cars in each box.

Circle to make 4 groups.

Work in pairs.

- 1 Count out 20 cubes.
- 2 Put the cubes equally onto 5 plates.

What you need:



How many cubes are there on each plate?

Can you put 18 cubes in 5 equal groups? Why or why not?

- 3 Repeat 1 and 2 with different numbers of cubes and paper plates.

Activity Time

Division Page 54

Mental Strategies

Count forwards and backwards in multiples of 2s, 5s and 10s.

Year 2 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 2: Number – Multiplication and Division

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Key Vocabulary

Groups of, equal groups of, halve, share, share equally, divide, divided by, divided into, repeated subtraction, inverse

Method 1 – Division by sharing equally.

Sharing

In Focus

Lesson 2

How can the sausages be put equally on 2 plates?
What is the number of sausages on each plate?

Let's Learn

There are 18 sausages.

Put 18 sausages equally on 2 plates.

$2 \times 9 = 18$

There are 9 sausages on each plate.

$18 \div 2 = 9$

Multiplication and Division of 2, 5 and 10 Page 84

Activity Time

Play in pairs.

What you need:

- Put 20 sausages equally on some plates.
 - Use 10 plates.
 - Use 5 plates.
 - Use 2 plates.
- Write the division equation.

Is it possible to put 20 sausages equally on 4 plates?

$20 \div 10 = \square$

Can you write the division equation?
- Can you also write the multiplication equation?

$\square \times \square = \square$

Multiplication and Division of 2, 5 and 10 Page 85

Method 3 – Division using fact families.

Put 10 buns equally on 5 plates.
How many buns are there on each plate?

$10 \div 2 = 5$

There are 2 buns on each plate.

There are 5 plates.
There are 2 buns on each plate.
 $2 \times 5 = 10$

We can make a family of multiplication and division facts.

$5 \times 2 = 10$ $10 \div 2 = 5$
 $2 \times 5 = 10$ $10 \div 5 = 2$

The multiplication and division equations are related.

2 Look at the picture.
Make a family of multiplication and division facts.

$2 \times 10 = 20$ $20 \div 10 = \square$
 $10 \times 2 = 20$ $20 \div 2 = \square$

Multiplication and Division of 2, 5 and 10 Page 87

Method 2 – Division using times tables.

Dividing by 10

In Focus

Lesson 5

60 sweets are packed into jars.
Each jar contains 10 sweets.
How many jars of sweets are there?

$60 \div 10 = 6$

Multiplication and Division of 2, 5 and 10 Page 92

Let's Learn

There are 60 sweets.

Put 10 sweets in each jar.

$6 \times 10 = 60$
 $60 \div 10 = 6$

60 ÷ 10 = 6

There are 6 jars of sweets.

What if the 60 sweets are packed equally into 10 jars?

Multiplication and Division of 2, 5 and 10 Page 93

Mental Strategies

To know that division is the inverse of multiplication.

Recall division facts for the 2, 5 and 10 times tables.

Recall halves for even numbers up to and including twenty.

Year 3 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 3: Number – Multiplication and Division

Pupils should be taught to:

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.

Key Vocabulary

Divided by, divide, divided into, grouping, short division, remainder, inverse

Method 1 – Division using times tables.

Method 2 – Division using bar models.

Dividing by 4 and 8

Lesson 11

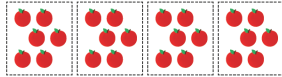
In Focus



How do we put these apples into 4 and 8 equal groups?

Let's Learn

- Put 24 apples into 4 equal groups.

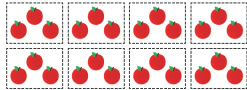


$24 \div 4 = 6$
Each group has 6 apples.

Can they be put into 3 equal groups?

$$4 \times 6 = 24$$

- Put 24 apples into 8 equal groups.



$24 \div 8 = 3$
Each group has 3 apples.

$$8 \times 3 = 24$$

Multiplication and Division Page 119

Solving Word Problems

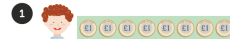
Lesson 14

In Focus



How many coins does she have?

Let's Learn

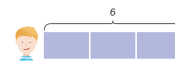


Method 1 $8 + 8 = 16$

Method 2 $2 \times 8 = 16$

she has 16 coins.

Multiplication and Division Page 128



$$6 \div 3 = 2$$

she has two biscuits.

Guided Practice

- There are 4 times as many biscuits in this box as there are in this box.



There are 32 biscuits in this box.

How many biscuits are there in this box?

Multiplication and Division Page 129

Method 3 – Division using the part-whole model.

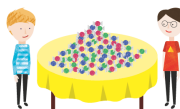
Method 4 – Division using the column method.

Simple Dividing

Lesson 6

In Focus

Sam and Charles share 68 sweets equally among themselves. How many sweets will each person get?

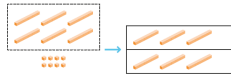


Let's Learn

To find the number of sweets each person gets, divide 68 by 2.

$$68 \div 2 = \square$$

Step 1 Divide 6 tens by 2.



$$6 \text{ tens} \div 2 = 3 \text{ tens}$$

$$6 \text{ tens} \div 2 = 3 \text{ tens}$$

Step 2 Divide 8 ones by 2.



$$8 \text{ ones} \div 2 = 4 \text{ ones}$$

$$8 \text{ ones} \div 2 = 4 \text{ ones}$$

Step 3 Add the results.

$$68 \div 2 = 30 + 4 = 34$$

Each person gets 34 sweets.

Further Multiplication and Division Page 149

Dividing with Regrouping

Lesson 8

In Focus

Charles learns this way to divide 96 by 8. $96 \div 8 = 12$. What is Charles doing?

$$\begin{array}{r} 12 \\ 8 \overline{) 96} \\ \underline{- 80} \\ 16 \\ \underline{- 16} \\ 0 \end{array}$$

Let's Learn



First, I take 80 from 96. Then, I take 16 from the remaining 16.

$$\begin{array}{r} 1 \text{ ten} \quad 12 \\ 8 \overline{) 96} \\ \underline{- 80} \\ 16 \\ \underline{- 16} \\ 0 \end{array}$$

$8 \text{ tens} \div 8 = 1 \text{ ten}$

Further Multiplication and Division Page 153

$$\begin{array}{r} 12 \\ 8 \overline{) 96} \\ \underline{- 80} \\ 16 \\ \underline{- 16} \\ 0 \end{array}$$

$16 \text{ ones} \div 8 = 2 \text{ ones}$

$$1 \text{ ten} + 2 \text{ ones} = 12$$

$$96 \div 8 = 12$$

Guided Practice

Use Charles' method to divide.

(a) $92 \div 2 = \square$

(b) $72 \div 3 = \square$

(c) $56 \div 4 = \square$

(d) $75 \div 5 = \square$

(e) $96 \div 4 = \square$

Complete Worksheet 8 • Page 124

Further Multiplication and Division Page 154

Mental Strategies

Know the division facts from the 3, 4 and 8 times tables.

Use knowledge of place value to calculate division (eg: 14 divided by 2 = 7, 140 divided by 2 = 70, 1400 divided by 2 = 700).

Year 4 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 4: Number – Multiplication and Division

Pupils should be taught to:

- recall multiplication and division facts for multiplication tables up to 12×12
- 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using a written layout.
- 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.

Key Vocabulary


Factor, divisor, divided by, divided into, remainder, divisible by, equivalent, short division, quotient, inverse, multiples

Method 1 – Division using bar models.

Lesson 11

Multiplying and Dividing by 11 and 12

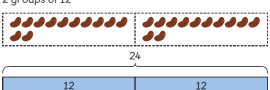
In Focus



Show 2×12 using the beans.

Let's Learn

1 Making 2 groups of 12



12 beans multiplied 2 times $2 \times 12 = 24$ 2 groups

We can also write $12 \times 2 = 24$.

Putting 24 beans into 2 equal groups $24 \div 2 = 12$ Each group has 12 beans.

Putting 24 beans into groups of 12 $24 \div 12 = 2$ There are 2 groups.

Multiplication and Division Page 127

2 This is a family of multiplication and division facts.

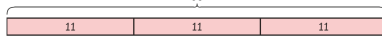
$$2 \times 12 = 24$$

$$12 \times 2 = 24$$

$$24 \div 2 = 12$$

$$24 \div 12 = 2$$

3 Use 33 beans to make 3 groups.



11 multiplied 3 times $3 \times 11 = 33$ 3 groups

Put in 3 groups. $11 \times 3 = 33$

Put in groups of 11. $33 \div 3 = 11$

$33 \div 11 = 3$


Multiplication and Division Page 128

Method 2 – Division by grouping.

Lesson 10

Dividing by 9

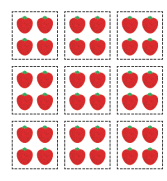
In Focus



Is placing them into 9 equal groups the same as placing them in groups of 9?

Let's Learn

1 Placing into 9 equal groups



$36 \div 9 = 4$ Each group has 4 strawberries.

$9 \times 4 = 36$

Multiplication and Division Page 125

Method 2

6 tens \div 6

$$\begin{array}{r} 1 \\ 6 \overline{) 75} \\ \underline{- 6} \\ 15 \\ \underline{- 12} \\ 3 \end{array}$$

$6 \overline{) 75} $ 12 ones \div 6

$$\begin{array}{r} 12 \\ 6 \overline{) 750} \\ \underline{- 6} \\ 150 \\ \underline{- 120} \\ 30 \\ \underline{- 30} \\ 0 \end{array}$$

remainder


$75 \div 6 = 12 \text{ remainder } 3$
quotient

It is not possible to put 75 children into 6 equal groups.


Guided Practice

There are 98 children.
Try to put them into 2 equal groups.
Is it possible to have 3 equal groups?
What about 4 or 5 equal groups?

(a) $98 \div 2 = \square$



98



80 \square

$$2 \overline{) 98} \\ \underline{- 8} \\ 18$$

Further Multiplication and Division Page 193

Mental Strategies

Know all related division facts for all times tables up to 12 time tables (by the end of Year 4).

Year 5 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 5: Number – Multiplication and Division

Pupils should be taught to:

- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- know and use the vocabulary of prime numbers, prime factors and composite (non- prime) numbers
- establish whether a number up to 100 is prime and recall prime numbers up to 19
- multiply numbers up to 4 digits by a one- or two-digit number using a written method, including long multiplication for two-digit numbers
- multiply and divide numbers mentally drawing upon known facts
- divide numbers up to 4 digits by a one-digit number using a written method of division and interpret remainders appropriately for the context. Use a calculator to reinforce results.
- multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

Key Vocabulary

Divide, divided by, divided into, divisible by, remainder, quotient, inverse, factor, decimal place, units, tenths, scaling, short division

Method 1 – Division using the column method.

Method 2 – Division using number bonds.

Dividing with Remainder

Lesson 19

In Focus

asked his mother for help to find the value of $376 \div 5$ in solving a word problem about putting 376 children in 5 equal groups.

's mother's method

$$\begin{array}{r} 75 \text{ remainder } 1 \\ 5 \overline{) 376} \\ \underline{35} \\ 26 \\ \underline{25} \\ 1 \end{array}$$

His father chipped in.

's father's method

$$\begin{array}{r} 75 \text{ remainder } 1 \\ 5 \overline{) 376} \\ \underline{35} \\ 26 \\ \underline{25} \\ 1 \end{array}$$

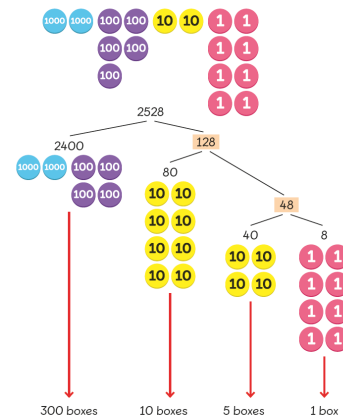
This is what learnt in school.

's method

$$\begin{array}{r} 75 \\ 5 \overline{) 376} \\ \underline{35} \\ 26 \\ \underline{25} \\ 1 \end{array}$$

Work out the methods used by 's mother and father.

Whole Numbers: Multiplication and Division Page 173



$$2528 \div 8 = 300 + 10 + 5 + 1 = 316$$

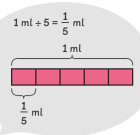
316 boxes are needed.

Whole Numbers: Multiplication and Division Page 170

- 4 376 ml of liquid soap is poured into 5 bottles. Each bottle contains the same amount of soap. Find the volume of soap in each bottle.

$$376 \text{ ml} \div 5 = 75 \frac{1}{5} \text{ ml}$$

$$\begin{array}{r} 75 \frac{1}{5} \\ 5 \overline{) 376} \\ \underline{35} \\ 26 \\ \underline{25} \\ 1 \\ \underline{1} \\ 0 \end{array}$$



Method 3 – Division using bar models.

Guided Practice

- 1 uses this method to divide.

$$3 \overline{) 42} \rightarrow 3 \overline{) 3 \frac{12}{4} 2}$$

(a) $98 \div 7 =$ $7 \overline{) 98}$ $7 \overline{) 9 \frac{8}{8}}$

(b) $342 \div 6 =$ $6 \overline{) 342}$ $6 \overline{) 3 \frac{4}{4} 2}$

Whole Numbers: Multiplication and Division Page 176

Mental Strategies

Multiply and divide numbers mentally drawing upon known facts.

Associate fractions with division.

Year 6 - Division

Jersey Curriculum for Mathematics – Statutory Requirements for Year 6: Number – Addition, Subtraction, Multiplication and Division

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using a written method of multiplication.
- divide numbers up to 4 digits by a two-digit whole number using a written method of division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Key Vocabulary

Divide, divided by, divided into, divisible by, remainder, factor, quotient, inverse, decimal place, units, tenths, hundredths, formal written methods

Method 1 – Division using bar models.

2 $£1146 \div 24 =$

$$\begin{array}{r} 24 \overline{) 1146} \\ \underline{- 96} \\ 186 \\ \underline{- 168} \\ 18 \\ \underline{- 18} \\ 0 \end{array}$$

$960 \div 24 =$

$186 \div 24 =$

$18 \div 24 =$

3 $£1146 \div 24 =$

$£1146 \div 2 = £573$
 $£573 \div 2 = £286.50$

$£1146 \div 24 = £573 \div 12 = £286.50 \div 6$

shared by 6 people

$$\begin{array}{r} 6 \overline{) 286.50} \\ \underline{- 24} \\ 46 \\ \underline{- 42} \\ 42 \\ \underline{- 42} \\ 0 \end{array}$$

$240 \div 6 =$

$42 \div 6 =$

$£4.50 \div 6 = 75p$

Four Operations on Whole Numbers Page 73

Method 2 – Division using number bonds.

Dividing by 2-Digit Numbers

In Focus

7192 people registered for a national sports camp.

We can put them into teams of 30.

That's not possible. We need teams of 31.

Who is correct?

Let's Learn

1 $7192 \div 30 =$

1000 1000 1000 1000 1000
 100 100 100 100 100
 100 100 100 100 100
 10 10 10 10 10
 10 10 10 10 10
 10 10 10 10 10
 10 10 10 10 10

Lesson 11

Page 63

Method 3 – Division using the column method.

2 $7192 \div 31 =$

$$\begin{array}{r} 7192 \\ \underline{- 6200} \\ 992 \\ \underline{- 930} \\ 62 \end{array}$$

$6200 \div 31 = 200$ teams
 $930 \div 31 = 30$ teams
 $62 \div 31 = 2$ teams

We can put 7192 participants into 232 teams of 31.

3 $7192 \div 31 =$

$$\begin{array}{r} 31 \overline{) 7192} \\ \underline{- 3100} \\ 4092 \\ \underline{- 3100} \\ 992 \\ \underline{- 930} \\ 62 \\ \underline{- 62} \\ 0 \end{array}$$

$6200 \div 31 = 200$
 $930 \div 31 = 30$
 $62 \div 31 = 2$

Four Operations on Whole Numbers Page 64

Mental Strategies

Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. Calculate a fraction of an amount.