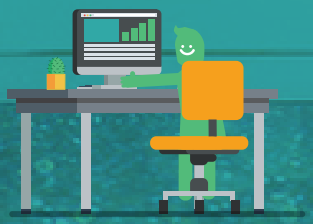
Year 2 White Rose Maths Hub (WRMH)
Autumn Scheme of Learning, 2017
Alignment with Mathletics

Year 2 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division	
Spring	Number: Multiplication and Division		Statistics		Geometry: Properties of Shape			Number: Fractions			Measurement: length and height	Consolidation
Summer	Position and direction			Problem solving and efficient methods		Measurement: Time			Measurement: Mass, Capacity and Temperature		Investigations	

This alignment document has been based on the White Rose Maths Hub scheme of learning available on the TES website.

www.tes.com/teaching-resource/wrm-schemes-of-learning-years-1-to-6-block-1-place-value-11652624



Year 2 White Rose Maths Hub (WRMH) Autumn Scheme of Learning, 2017

Content

Examples of alignment to Mathletics

Weeks 1-3 Number: Place Value 01

Weeks 4-8 Number: Addition and Subtraction 05

Week 9-10 Measurement: Money 12

Weeks 11 and 12 Multiplication and Division 14

Purpose:

The aim of this document is to support Mathletics teachers, who use the WRMH scheme of learning, to make full use of the resources available within Mathletics. Whenever possible, activities, pages from the eBooks or learning experiences on Rainforest Maths have been matched to each of the small steps on the WRMH scheme of learning.

In Mathletics, many eBooks are available in the student interface, however all eBooks are available to teachers through the teacher console. These topic-based eBooks contain practice and fluency exercises, along with application questions and games. Only a small selection of the relevant pages has been added to the document.

Links to Rainforest Maths, which can be found in the 'Play' area in the Mathletics student interface, have also been included as this resource has great visuals which work well on interactive whiteboards and give pupils further opportunities to practise their learning online.

Course selection:
A specific Mathletics course has been created in alignment with the WRMH scheme of learning. You may wish to set this course for your class/groups. When assigning activities with calculations that do not have spaces for recording any regroupings, consider getting pupils to record the calculation in their Maths books, then answer the question on Mathletics. Encourage students to use the strategies they are being taught in class and to use manipulatives if needed.

England Yr 02 WRMH Autumn Aligned

Data-Driven Teaching and Learning

Differentiation

Feedback and Reflection

Student Growth

Blended Learning

Year 2 White Rose Maths Hub (WRMH) Autumn Scheme of Learning, 2017

Examples of alignment to Mathletics

Weeks 1-3 Number: Place Value

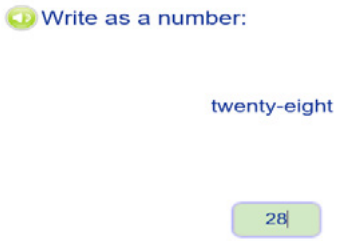
National Curriculum Objectives	WRMH Small Steps
▸ Read and write numbers to at least 100 in numerals and in words. ▸ Recognise the place value of each digit in a two-digit number (tens, ones). ▸ Identify, represent and estimate numbers using different representations, including the number line. ▸ Compare and order numbers from 0 up to 100; use <, > and = signs. ▸ Use place value and number facts to solve problems. ▸ Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.	▸ Count objects to 100 and read and write numbers in numerals and words ▸ Represent numbers to 100 ▸ Tens and ones with a part whole model ▸ Tens and ones using addition ▸ Use a place value chart ▸ Compare objects ▸ Compare numbers ▸ Order objects and numbers ▸ Count in 2s, 5s and 10s ▸ Count in 3s

Small step: Count objects to 100

Rainforest Maths — Level B — Number — How many frogs?

Shows frogs, blocks or counters, arranged in tens and ones. Pupils count the objects and select the correct number.

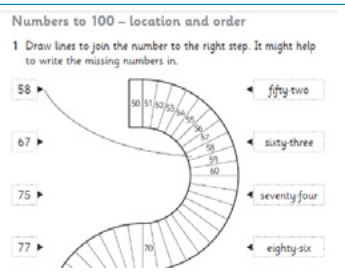
Small step: Read and write numbers in numerals and words



Topic: Number and Place Value to 100

Activity: *Reading Numbers to 30*

Pupils write the numeral for the number shown in words (up to 30).



eBook, B series: Numbers, page 54

Use the order of numbers from 50 to 100 to locate a number on the 'ladder' and the matching words for that number.

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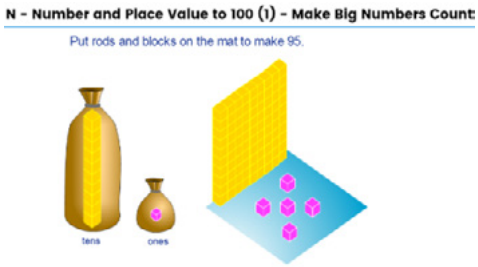
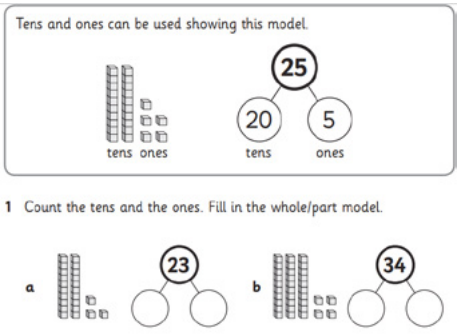
Small step: Represent numbers to 100



Topic: Number and Place Value to 100

Activity: *Make Big Numbers Count*

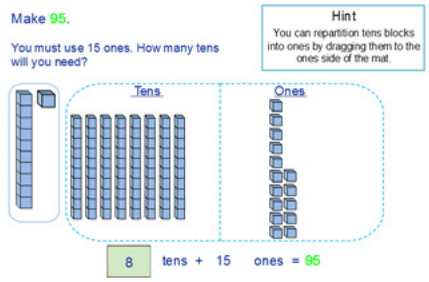
This activity is about representing 2-digit numbers as tens and ones rods and cubes. Pupils drag the 10 rods and the one cubes to make the number shown.



eBook, C series: Numbers, page 21

Partition a 2-digit number into tens and ones using a part whole model.

Small step: Tens and ones using addition

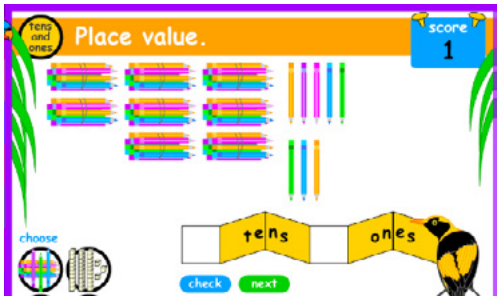


Topic: Number and Place Value to 100

Activity: *Repartition Two-digit Numbers*

Easier questions require the partitioning of numbers into tens and ones; medium and harder level questions involve the partitioning of numbers in non-standard ways eg, 74 repartitioned as 6 tens and 14 ones. Pupils are able to drag a tens rod into the ones column and see the rod split into 10 ones.

Small step: Use a place value chart

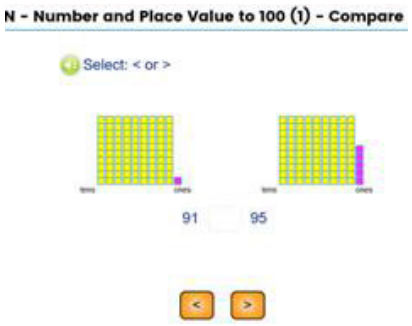


Rainforest Maths — Level B — Place Value

Interpret the place value model, enter the number of tens and ones into a place value chart and click check. The chart then folds to show the 2-digit number.

Year 2 White Rose Maths Hub (WRMH) Autumn Scheme of Learning, 2017

Small steps:
- Compare objects
- Compare numbers



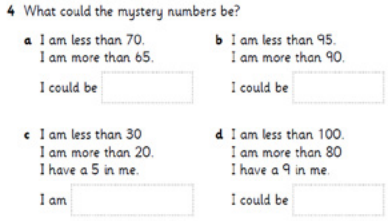
Topic: Number and Place Value to 100

Activity: *Compare Numbers to 100*

Pupils compare 2-digit numbers represented in both numerals and place value blocks. They use greater than and less than symbols to compare.

Similar Activity: *Compare Numbers to 50*

Pupils compare 2-digit numbers represented in both numerals and place value blocks. They use greater than and less than symbols to compare.



eBook, B series: Teachers Book, Assessment — Numbers to 100, page 17

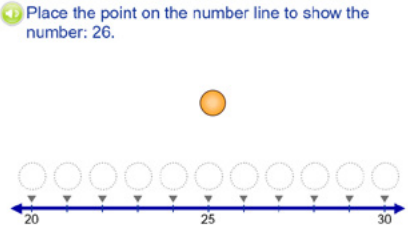
Read the comparative descriptions to find the possibilities for the mystery numbers.

Topic: Number and Place Value to 100

Activity: *Arranging Numbers*

Pupils compare two numbers within 100 to decide which is smallest and which is biggest.

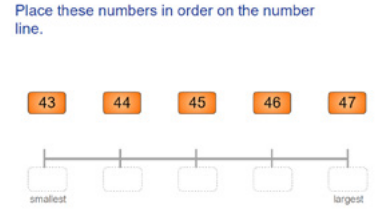
Small step: Order objects and numbers



Topic: Number and Place Value to 100

Activity: *Number Lines*

In this adaptive activity, the first level has each number labelled on the number line, but then moves to labelling every multiple of 2 and then multiple of 5. This requires the pupils to use their understanding of the order of numbers to place the point on the number line.



Topic: Number and Place Value to 100

Activity: *Number Line Order*

Pupils place 2-digit numbers in order on a number line from smallest to largest.

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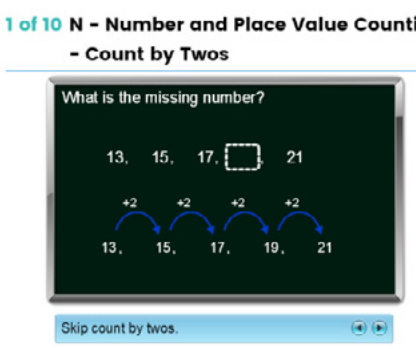
Small step: Count in 2s, 5s and 10s

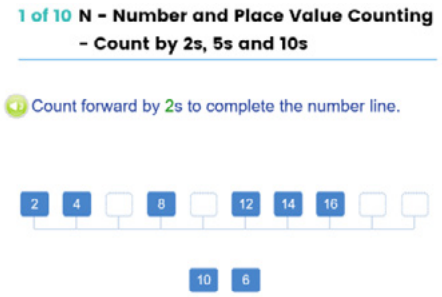


Topic: Number and Place Value to 100

Activity: *Count by Twos*

Pupils count on in 2s from various starting numbers, to identify the missing number.

Similar activities:
Count by Fives
Count by Tens

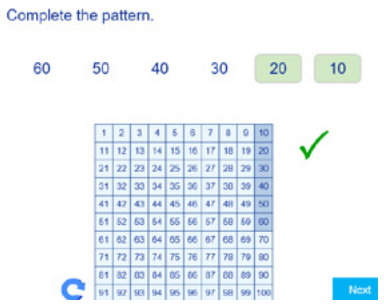


Topic: Number and Place Value to 100

Activity: *Count by 2s, 5s and 10s*

This activity shows some numbers on a number line and asks pupils to count in 2s, 5s and 10s in order to enter the missing numbers.

Counts both forward and backward.

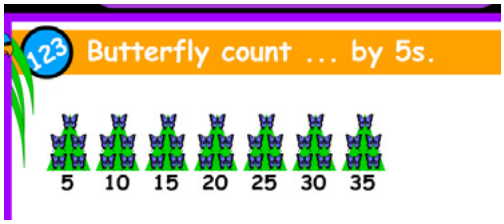


Topic: Number and Place Value to 100

Activity: *Counting on a 100 Grid*

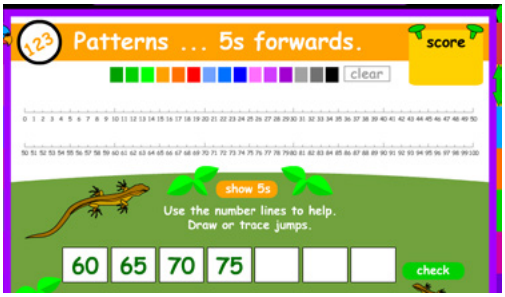
This activity uses a hundred square to support pupils in recognising counting patterns. Pupils can click to shade the numbers on the grid as they count. Once an answer is entered, the correct pattern is shaded on the grid.

The counting patterns are not restricted to multiples of 2, 5 or 10.



Rainforest Maths — Level B — Counting in 2s, 5s and 10s

The visual model allows you to add or subtract groups to practise counting in 2s, 5s or 10s.



Rainforest Maths — Level B — Patterns — 2s, 5s and 10s

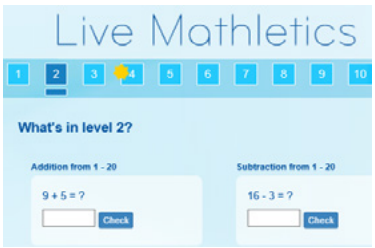
Illustrates the pattern when counting in 5s or 10s on a number line and for 2s on a hundred square.

Examples of alignment to Mathletics

Weeks 4-8 Number: Addition and Subtraction

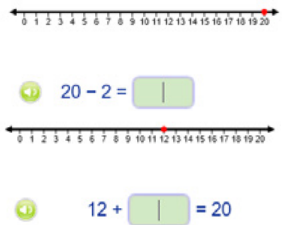
National Curriculum Objectives	WRMH Small Steps
▸ Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ▸ Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. ▸ Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. ▸ 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. ▸ Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	▸ Fact families – Addition and subtraction bonds to 20 ▸ Check calculations ▸ Compare number sentences ▸ Related facts ▸ Bonds to 100 (tens) ▸ Add and subtract 1s ▸ 10 more and 10 less ▸ Add and subtract 10s ▸ Add a 2-digit and 1-digit number – crossing ten ▸ Subtract a 1-digit number from a 2-digit number – crossing ten ▸ Add two 2-digit numbers – not crossing ten – add ones and add tens ▸ Add two 2-digit numbers – crossing ten – add ones and add tens ▸ Subtract a 2-digit number from a 2-digit number – not crossing ten ▸ Subtract a 2-digit number from a 2-digit number – crossing ten – subtract ones and tens ▸ Bonds to 100 (tens and ones) ▸ Add three 1-digit numbers

Small step: Fact families – Addition and subtraction bonds to 20



Live Mathletics: Level 2

In 1-minute bursts, pupils can practise addition and subtraction facts to 20. Develops fluency and accurate recall.



Topic: Add and Subtract

Activity: *All about Twenty*

This activity provides addition and subtraction problems with bonds to 20, represented on a number line.

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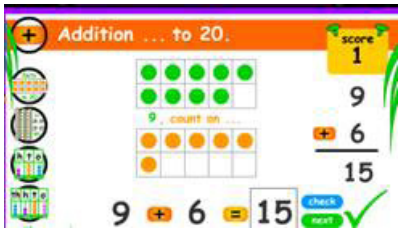
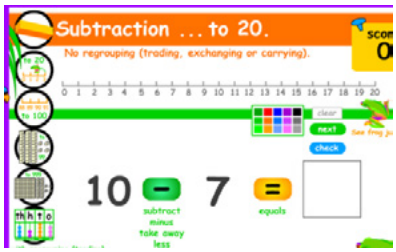
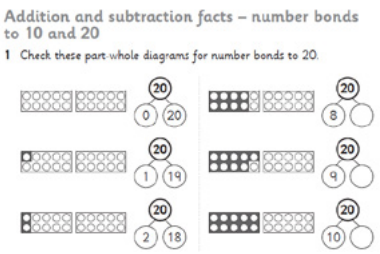
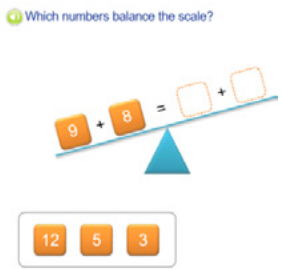
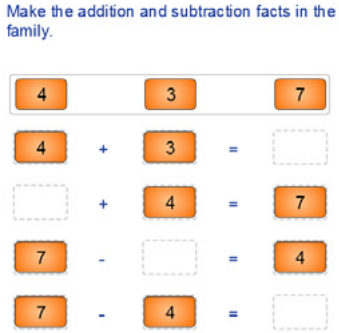
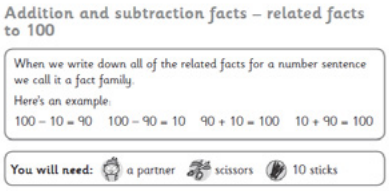
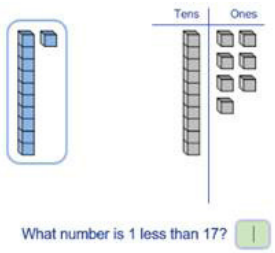
	Rainforest Maths — Level D — Addition to 20 Exercises to practise counting on to add.
	Rainforest Maths — Level D — Subtraction to 20 Exercises to practise counting back to subtract.
	eBook: Operations with Number, page 11 Part-whole models showing bonds to 20. Pupils find the missing bond after reading the explanation.
Small step: Compare number sentences	
	Topic: Add and Subtract Activity: *Balance Additions to 20* This activity explores the use of the equals sign and balanced number sentences.
Small step: Related facts	
	Topic: Add and Subtract Activity: *Fact families: Add and Subtract* Three numbers are shown and pupils must complete the four related addition and subtraction number sentences for those numbers.

Small step: Bonds to 100 (tens)



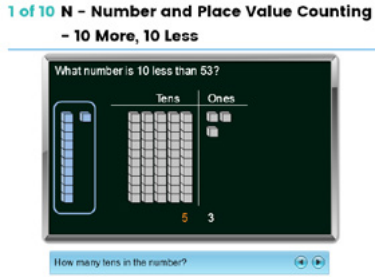
eBook, C series: Operations with Numbers, page 26
Games and exercises related to bonds to 100 (in tens).

Small step: Add and subtract 1s



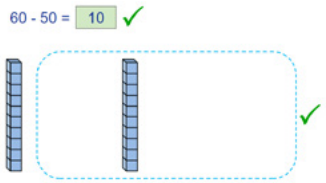
Topic: Add and Subtract
Activity: *1 more, 2 less*
Pupils remove ones cubes to find the number 2 less, or drag in a cube to add 1 and find the number 1 more.

Small step: 10 more and 10 less

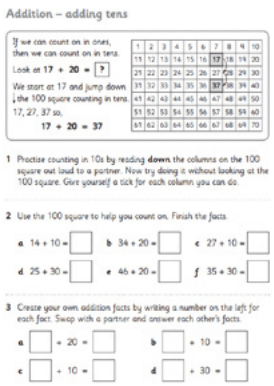


Topic: Add and Subtract
Activity: *10 more, 10 less*
Place value models in the support demonstrate how adding or subtracting 10 changes a number.

Small step: Add and subtract 10s



Topic: Add and Subtract
Activity: *Subtract Tens*
Pupils subtract tens with the use of place value models.



eBook, C series: Operations with Number, page 35 and 36
Use a hundred square as a visual support when adding on tens.

Page 41
Add multiples of ten together.

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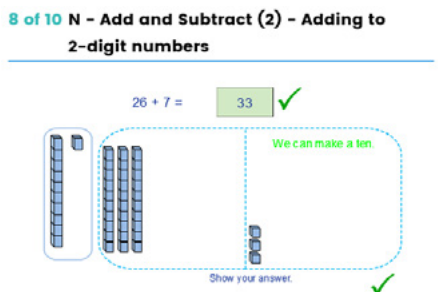
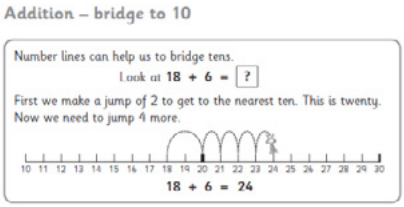
Small step: Add a 2-digit and 1-digit number – crossing ten



Topic: Add and Subtract

Activity: *Adding to 2-digit numbers*

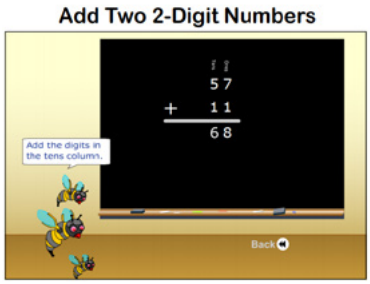
Pupils can use the place value model to add the tens and ones. If 10 ones cubes are created, the model will show those ones being converted into a tens rod.



eBook, C series: Operations with number, page 40

Explanation and exercises related to bridging 10 on the number line as an addition strategy.

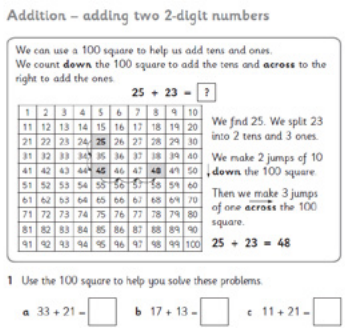
Small step: Add two 2-digit numbers – not crossing ten – add ones and add tens



Topic: Add and Subtract (Written Method)

Activity: *Add Two 2-Digit Numbers*

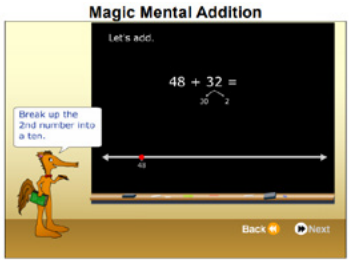
This activity provides column addition with no crossing tens.



eBook, C series: Operations with Numbers, page 42

Illustrates adding 2-digit numbers using a 100 square – followed by exercises and activities for practice.

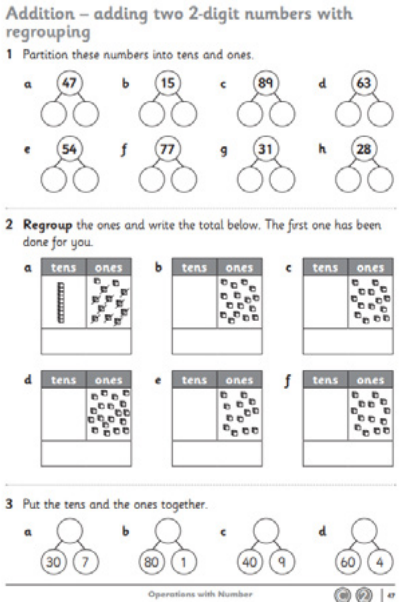
Small step: Add two 2-digit numbers – crossing ten – add ones and add tens



Topic: Add and Subtract

Activity: *Magic Mental Addition*

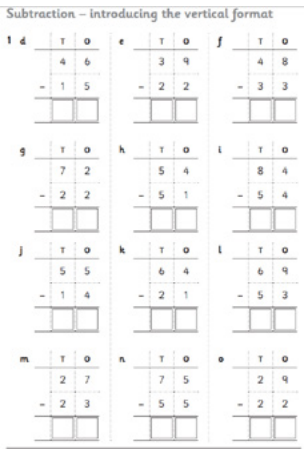
Addition of two 2-digit numbers using place value. Partition the second number into tens and ones and add to the first number using the number line.



eBook, C series: Operations with Numbers, page 46 and 47

Use place value partitioning to begin to add two 2-digit numbers with regrouping.

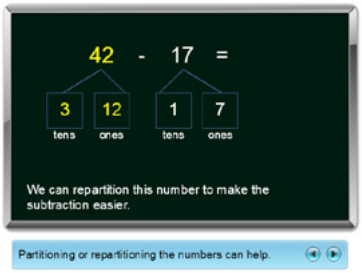
Small steps: Subtract a 2-digit number from a 2-digit number – not crossing ten



eBook, C series: Operations with Numbers, page 65

Introduction to subtracting 2-digit numbers using the vertical format (no exchanges).

Small step: Subtract a 2-digit number from a 2-digit number – crossing ten – subtract ones and tens



Topic: Add and Subtract

Activity: *Repartition to Subtract*

This activity models partitioning to support subtraction when crossing the 10s boundary.

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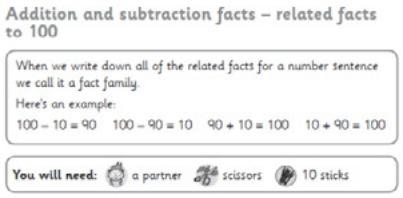
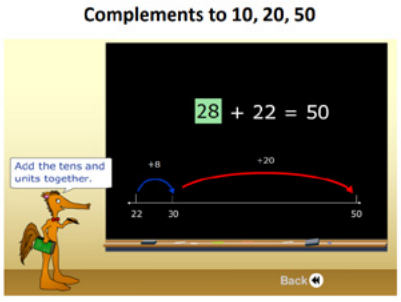
Small step: Bonds to 100 (tens and ones)



eBook, C series: Operations with Number, page 26

Example of an activity for developing understanding of related facts for number bonds to 100 – tens.



Topic: Add and Subtract (Written Method)

Activity: *Complements to 10, 20, 50*

Find the missing number bond to add to 10, 20 or 50. Support shows jumping through a ten as the strategy.

Small step: Add three 1-digit numbers

Topic: Add and Subtract (Written Method)

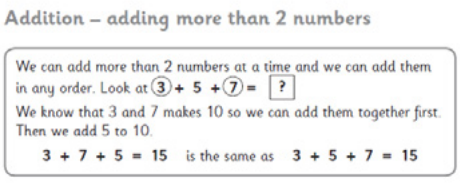
Activity: *Add Three 1-Digit Numbers*

Support illustrates looking for bonds to 10 first and then adding the 3rd digit.

Topic: Add and Subtract

Activity: *Add 3 Numbers Using Bonds to 10*

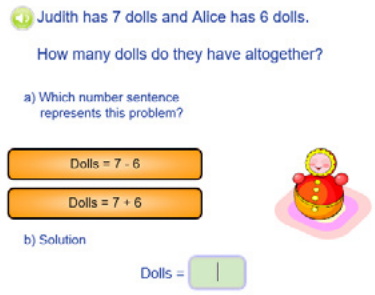
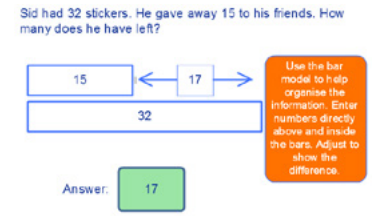
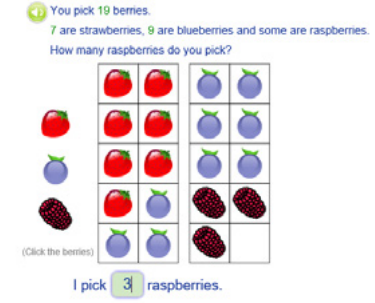
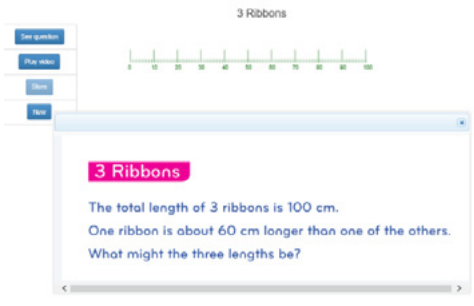
In this activity, pupils can move the digits to align two numbers that add up to ten, and then add the third number.



eBook, C series: Operations with Numbers, page 31

Following the explanation there is a series of exercises for pupils to practise adding 3 single digit numbers.

Problem solving and reasoning problems: addition and subtraction

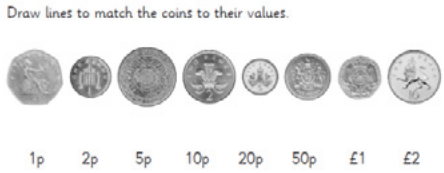
	Topic: Problem Solving Activity: *Problems: Add and Subtract* Pupils need to first decide if the problem is an addition or subtraction problem and then work out the answer.
	Topic: Problem Solving Activity: *Bar Model Problems (1)* Pupils enter information into a bar model to represent and help them solve the word problem. They can move the slider to resize the bars in proportion to the numbers.
	Topic: Problem Solving Activity: *Add and Subtract Problems* This activity involves addition of three numbers. Many of the questions are part unknown rather than result unknown. Pupils can use the interactive tens frames to model the problem.
	eBook, C series: 3 Ribbons (rich task) The interactive included in this task is designed to be used by teachers to share with the whole class or small groups. A print out of the problem is available for pupils to work with. In the 3 Ribbons problem, pupils are asked to find the possible lengths of 3 ribbons with a total length of 100 cm. The problem encourages pupils to apply the knowledge they have learned about addition to 100.

Examples of alignment to Mathletics

Week 9-10 Measurement: Money

National Curriculum Objectives	WRMH Small Steps
▸ Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. ▸ Find different combinations of coins that equal the same amounts of money. ▸ Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	▸ Count money – pence ▸ Count money – pounds (notes and coins) ▸ Count money – notes and coins ▸ Select money ▸ Make the same amount ▸ Compare money ▸ Find the total ▸ Find the difference ▸ Find change ▸ Two-step problems

Small step: Count money – pence

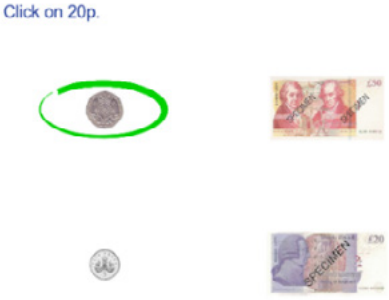


eBook, C series: Time and Money, Topic 2 Money, page 18
Identify the value of coins in both pounds and pence.

Small step: Count money – pounds (notes and coins)

Topic: Money
Activity: *Money - Who's got it? (GBP)*
Pupils add up the value of the coins each child has and find the child who has the given amount.

Small step: Select money



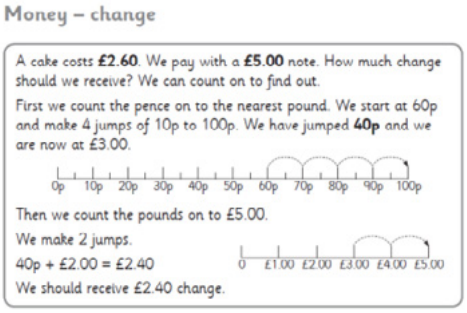
Topic: Money
Activity: *Identify Everyday Money (GBP)*
Pupils identify the correct note or coin for the amount shown.

Small step: Find change

Topic: Money

Activity: *How much Change? (GBP)*

Pupils are asked to find the change in pounds (whole numbers only).



eBook, C series: Time and Money, Topic 2, page 33

Find the change in pounds and pence using a number line and a strategy of counting on to the total from the given amount.

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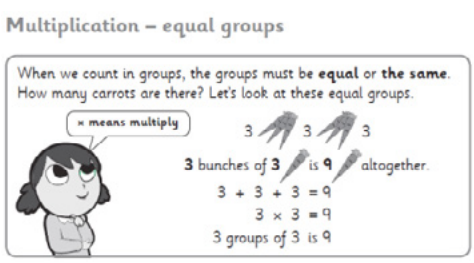
Examples of alignment to Mathletics

Week 11-12 Multiplication and Division

National Curriculum Objectives	WRMH Small Steps
▸ Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. ▸ Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. ▸ Solve problems involving multiplication and division using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. ▸ Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.	▸ Recognise equal groups ▸ Make equal groups ▸ Add equal groups ▸ Multiplication sentences using the × symbol ▸ Multiplication sentences from pictures ▸ Use arrays ▸ 2 times-table ▸ 5 times-table ▸ 10 times-table

Small step: Recognise equal groups


Multiplication – equal groups

When we count in groups, the groups must be **equal** or **the same**.
How many carrots are there? Let's look at these equal groups.

× means multiply

3 3 3

3 bunches of 3 is 9 altogether.

3 + 3 + 3 = 9

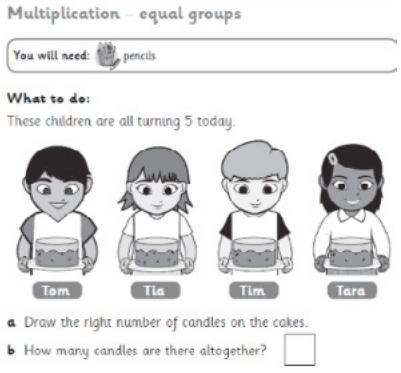
3 × 3 = 9

3 groups of 3 is 9

eBook, C series: Operations with Numbers, page 81

Explanation and exercises related to creating equal groups and then using equal groups to answer multiplication questions.

Small step: Make equal groups


Multiplication – equal groups

You will need: pencils

What to do:

These children are all turning 5 today.

Tom Tia Tim Tara

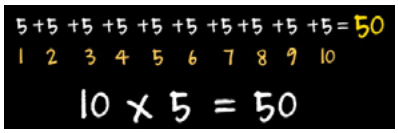
a Draw the right number of candles on the cakes.

b How many candles are there altogether?

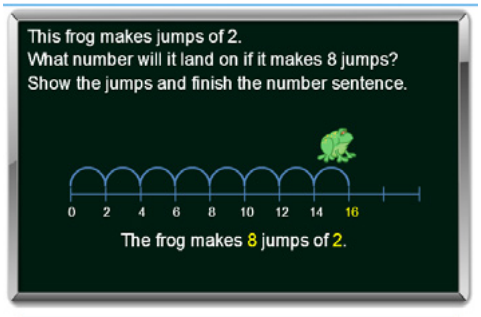
eBook, B series: Operations with Numbers, page 93

Pupils create equal groups and use their drawings to help solve multiplication problems.

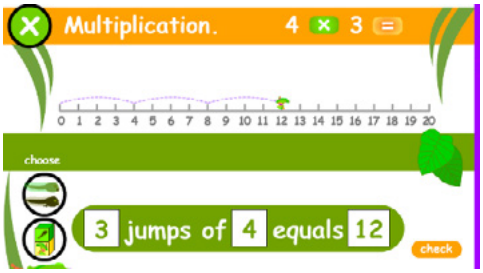
Small step: Add equal groups



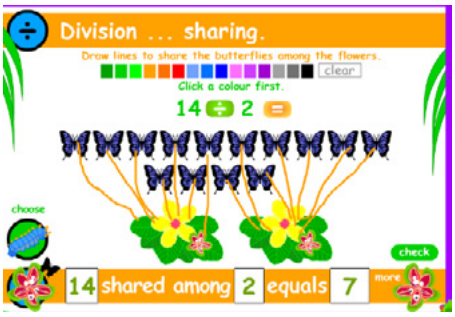
Topic: Multiply and Divide
Activity: *Frog Jump Multiplication*
The video associated with this activity clearly illustrates multiplication as the addition of equal groups.



Topic: Multiply and Divide
Activity: *Frog Jump Multiplication*
Multiplication as repeated addition using a number line.

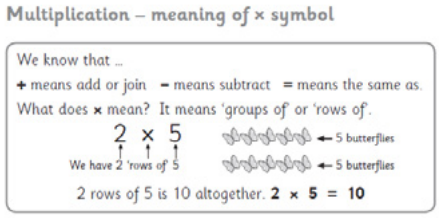


Rainforest Maths — Level B — Multiplication
Models multiplication questions is shown using repeated addition on a number line.



Rainforest Maths — Level B — Division
Pupils draw lines to share the butterflies between the flowers equally.
Supports understanding of division as sharing into equal groups.

Small step: Multiplication sentences using the x symbol



eBook, B series: Operations with Number, page 96
Explains the use of the multiplication symbol and provides exercises and activities, including games, to develop understanding of multiplication and the use of the symbol.

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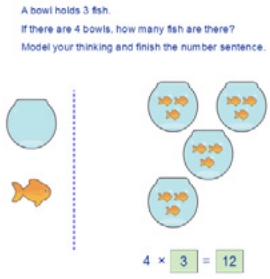
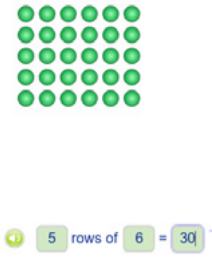
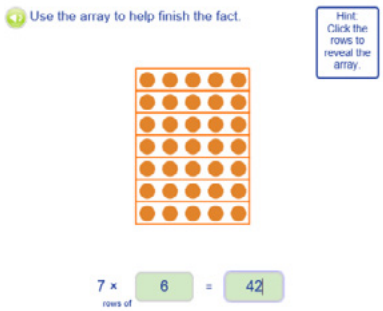
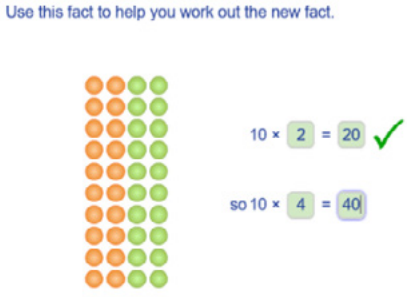
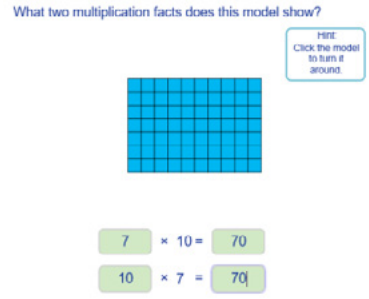
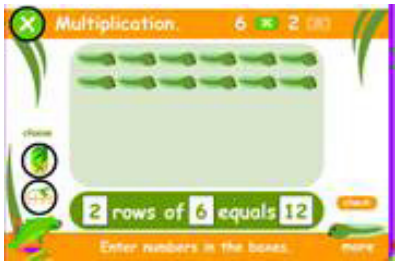
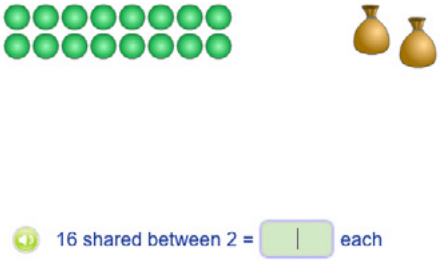
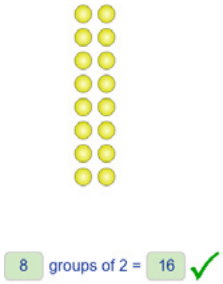
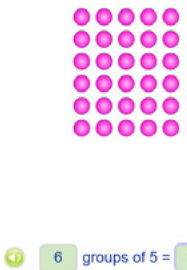
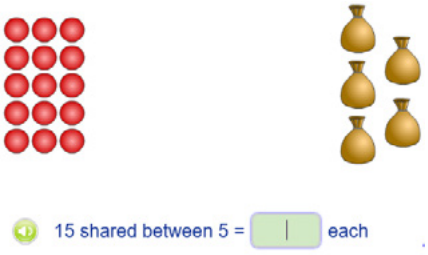
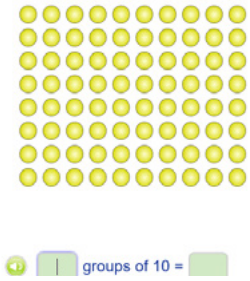
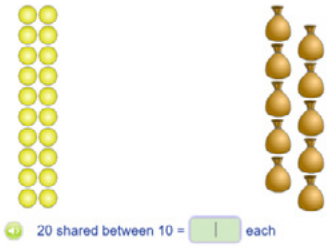
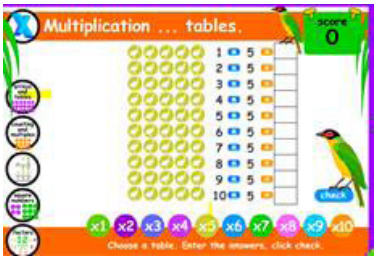
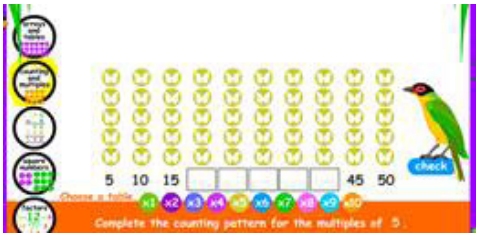
Small step: Multiplication sentences from pictures	
	Topic: Multiply and Divide Activity: *Multiplication Problems 1* Pupils group the objects to reflect the multiplication problem and use this to write the corresponding number sentence.
Small step: Use arrays	
	Topic: Multiply and Divide Activity: *Multiplication Arrays* This activity models multiplication as arrays. Pupils record the amount of objects in each row and how many rows before recording the total.
	Topic: Multiply and Divide Activity: *Arrays 1* Pupils click on the rows to reveal the objects in the rows and create the array. This array is then used to find and solve the number sentence.
	Topic: Multiply and Divide Activity: *Arrays 2* Pupils solve a multiplication problem using an array. They are then shown a related array and problem. They are encouraged to use the answer to the first problem to find the answer to the second problem.
	Topic: Multiply and Divide Activity: *Multiplication Turnarounds* Pupils click on the array and are able to see the array rotate a quarter turn to show the related array. They record the multiplication for both arrays — seeing the relationship between the calculations.

	Rainforest Maths — Level B — Multiplication Uses arrays to model multiplication.
Small step: 2 times-table	
	Topic: Multiply and Divide Activity: *Dividing Twos* This activity uses the image of the array, combined with the bags, to show that the total in the array is shared into two equal groups. It supports understanding of division as the inverse to multiplication.
	Topic: Multiply and Divide Activity: *Groups of Two* This activity uses arrays to support understanding of the 2 times-table.
Small step: 5 times-table	
	Topic: Multiply and Divide Activity: *Groups of Five* This activity uses arrays to support understanding of the 5 times-table.
	Topic: Multiply and Divide Activity: *Dividing Fives* This activity uses the image of the array, combined with the bags, to show that the total in the array is shared into equal groups. It supports understanding of division as the inverse to multiplication.

Small step: 10 times-table	
	Topic: Multiply and Divide Activity: *Groups of Ten* This activity uses arrays to support understanding of the 10 times-table.
	Topic: Multiply and Divide Activity: *Dividing Tens* This activity uses the image of the array, combined with the bags, to show that the total in the array is shared into ten equal groups. It supports understanding of division as the inverse to multiplication.
Additional multiplication practice	
	Times Table Toons Times Tables Toons has catchy songs to support the learning of all the times tables.
	Rainforest Maths – Level D - Multiplication Pupils can select 'Arrays and tables' and then the times-table they are practising to see the arrays and record the totals.
	Rainforest Maths – Level D - Multiplication Pupils can select 'Counting and Multiples' to support counting in groups of 2s, 5s and 10s using visuals.

Live Mathletics

Live Mathletics engages pupils in one minute games where they are challenged to recall Maths facts.

To support progress in Year 2, challenge pupils to use Level 3 Live Mathletics. At Level 3, questions include those on the recall of the 2, 3, 5 and 10 times-tables.

Teachers can set minimum levels in Live Mathletics by clicking the switch to old Mathletics button, selecting results, and selecting minimum levels on the left-hand side of the page. Students can still access higher levels once you set a minimum level, so encourage students to challenge themselves and move on to the next level when they are ready.

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For more information about Mathletics, contact our friendly team.

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