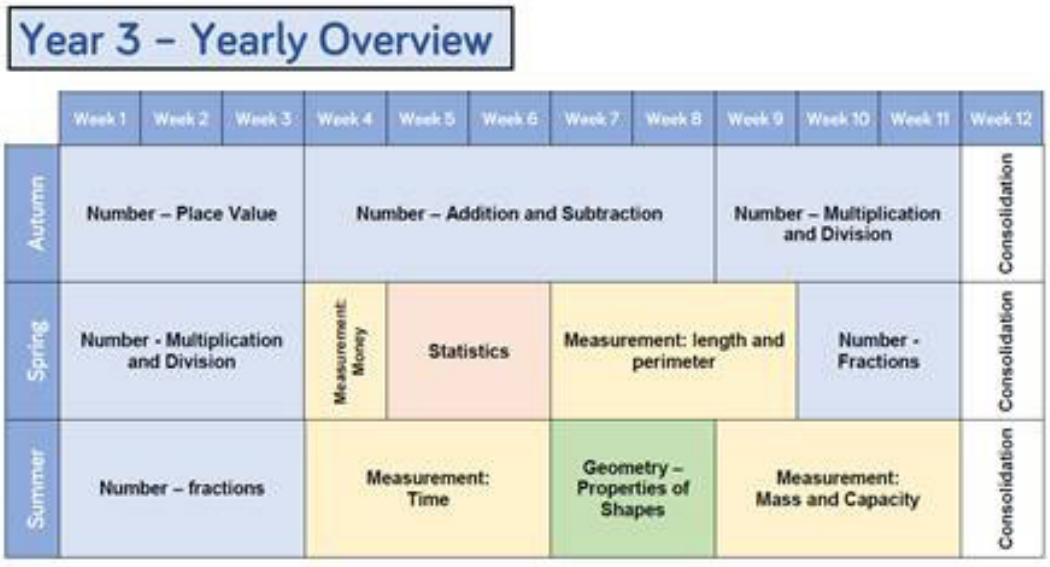
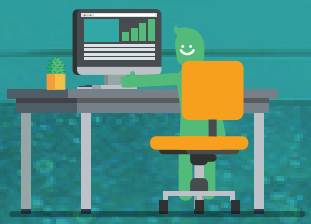
Year 3 White Rose Maths Hub (WRMH)
Autumn Scheme of Learning, 2017
Alignment with Mathletics



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

Content

Examples of alignment to Mathletics

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 gives 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.

England Yr 03 WRMH Autumn Aligned

Data-Driven Teaching and Learning

Differentiation

Feedback and Reflection

Student Growth

Blended Learning

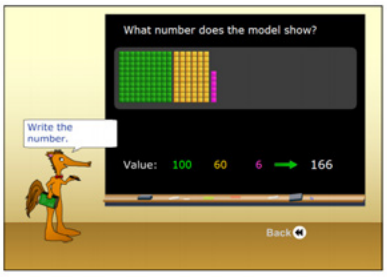
Year 3 White Rose Maths Hub (WRMH) Autumn Scheme of Learning, 2017

Examples of alignment to Mathletics

Weeks 1-3 Number: Place Value

National Curriculum Objectives	WRMH Small Steps
▸ Identify, represent and estimate numbers using different representations. ▸ Find 10 or 100 more or less than a given number. ▸ Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). ▸ Compare and order numbers up to 1000. ▸ Read and write numbers up to 1000 in numerals and in words. ▸ Solve number problems and practical problems involving these ideas. ▸ Count from 0 in multiples of 4, 8, 50 and 100.	▸ Hundreds ▸ Represent numbers to 1,000 ▸ 100s, 10s and 1s ▸ Number line to 1,000 ▸ Find 1, 10, 100 more or less than a given number ▸ Compare objects to 1,000 ▸ Compare numbers to 1,000 ▸ Order numbers ▸ Count in 50s

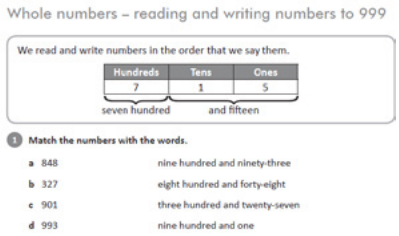
Small step: Represent numbers to 1,000



Topic: Number and Place Value

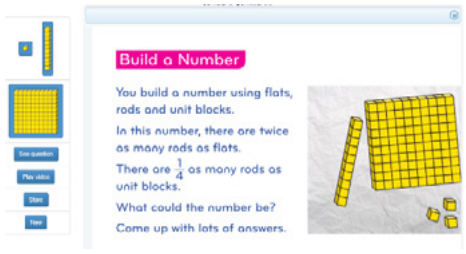
Activity: *Model Numbers*

Pupils write the 3-digit number represented by place value blocks.



eBooks — D series: Whole Numbers and Place Value, page 1 +

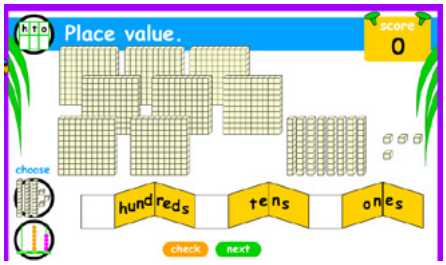
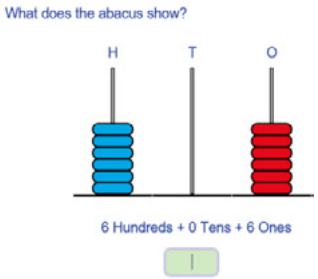
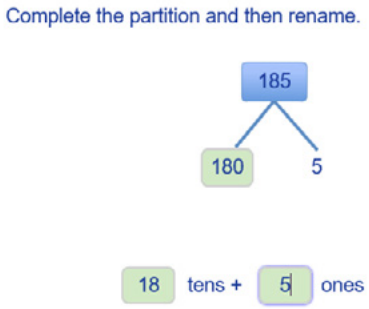
Exercises for additional practice with place value to 1,000.



Interactive/Rich task — Year 3: Build a Number

The interactive included with this problem can be used to model and explore 3-digit numbers.

The problem engages pupils in reasoning and applying their knowledge of place value and fractions.

	Rainforest Maths — Level C — Place Value Excellent visuals to support understanding of place value to 999.
Small step: 100s, 10s and 1s	
	Topic: Number and Place Value Activity: *Place Value 2* Pupils use the visual of the abacus to develop their understanding of the places of digits in 3-digit numbers.
	Topic: Number and Place Value Activity: *Place Value to Thousands* Pupils practise identifying the value of each digit in 2, 3 and 4-digit numbers.
	Topic: Number and Place Value Activity: *Partition and rename 1* Once pupils are familiar with partitioning numbers into 100s, 10s and 1s, this activity ensures a deeper understanding of place value by requiring pupils to partition numbers in different ways. For example, 185 as 180 + 5 or 18 tens and 5 ones, or 1 hundred and 85 ones, in addition to 180 = 100 + 80 + 5.

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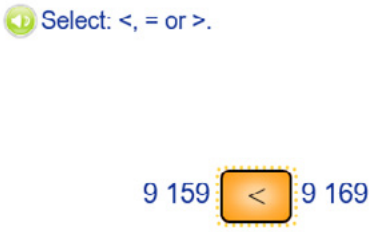
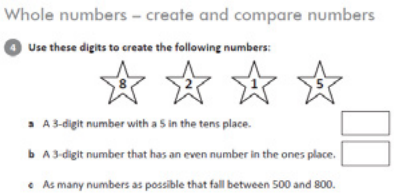
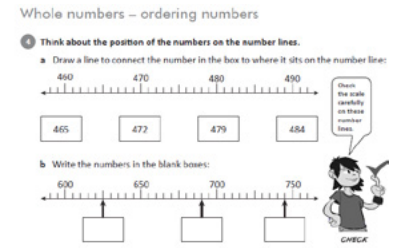
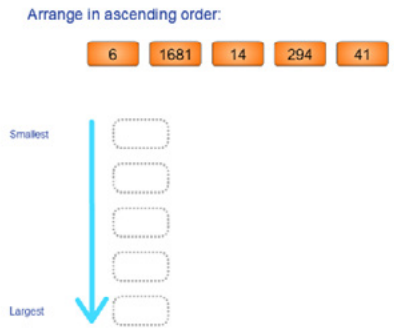
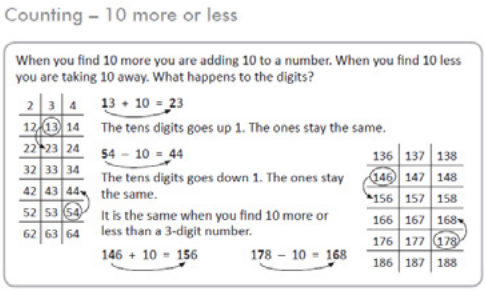
Small steps:
- Compare numbers to 1,000
- Order numbers

	Topic: Number and Place Value to 100 Activity: *Greater Than or Less Than?* This activity begins with 2-digit numbers and moves through comparing 3 and 4-digit numbers, using the more than, less than and equal to symbols.
	eBook — D series: Number and Place Value, page 6 Exercises to find numbers 1 more and 1 less than a 3-digit number and to order 3-digit numbers.
	eBook — D series: Number and Place Value, page 4 Activities to practise ordering numbers and placing them on number lines to 1,000.
	Rainforest Maths — Level C — Place Value: Ordering numbers Order three numbers from smallest to largest (numbers up to 999).
	Topic: Number and Place Value Activity: *Ascending Order* This adaptive activity begins with 2-digit numbers, and then moves on to sorting numbers including 3-digit numbers and then 4-digit numbers. Topic: Number and Place Value Activity: *Descending Order* Similar activity to Ascending Order, but numbers are put in order from the largest to the smallest.

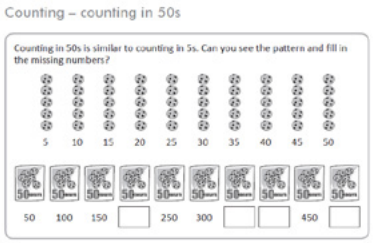
Small step: Find 1, 10, 100 more or less than a given number



eBook, D series: Number and Place Value, page 14
Exercises to practise adding and subtracting 10s and counting on and back in 10s.

page 16 — explores adding and subtracting 100s and counting on and back in 100s.

Small step: Count in 50s



eBooks, D series: Number and Place Value, page 13
Activities to practise counting in 50s.
This eBook also contains exercises to practise counting in 100s.

Problem Solving topic: Applying knowledge of place value to solving problems

Here is part of a number grid.
Enter the missing numbers.

940		942
	951	952
	961	962

Topic: Problem Solving
Activity: *Missing Numbers 2*
Pupils are shown part of a number grid and use their understanding of number, counting and place value to enter the missing numbers.

Examples of alignment to Mathletics

Weeks 4-8 Number: Addition and Subtraction

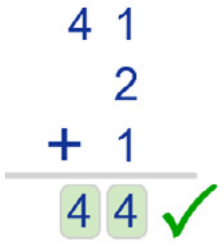
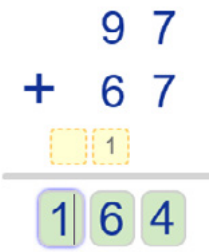
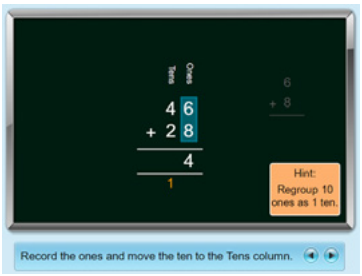
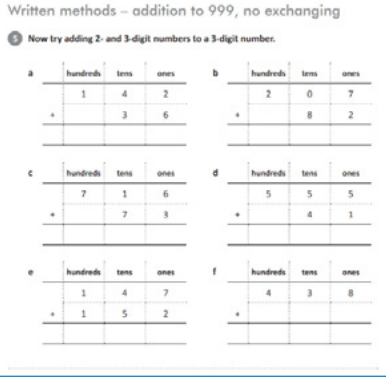
National Curriculum Objectives	WRMH Small Steps
▸ Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. ▸ Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. ▸ 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.	▸ Add and subtract multiples of 100 ▸ Add and subtract 3-digit numbers and ones – not crossing 10 ▸ Add 3-digit and 1-digit numbers – crossing 10 ▸ Subtract a 1-digit number from a 3-digit number – crossing 10 ▸ Add and subtract 3-digit numbers and tens – not crossing 100 ▸ Add a 3-digit number and tens – crossing 100 ▸ Subtract tens from a 3-digit number – crossing 100 ▸ Add and subtract 100s ▸ Spot the pattern – making it explicit ▸ Add and subtract a 2-digit and 3-digit number – not crossing 10 or 100 ▸ Add a 2-digit and 3-digit number – crossing 10 or 100 ▸ Subtract a 2-digit number from a 3-digit number – cross the 10 or 100 ▸ Add two 3-digit numbers – not crossing 10 or 100 ▸ Add two 3-digit numbers – crossing 10 or 100 ▸ Subtract a 3-digit number from a 3-digit number – no exchange ▸ Subtract a 3-digit number from a 3-digit number – exchange ▸ Estimate answers to calculations ▸ Check

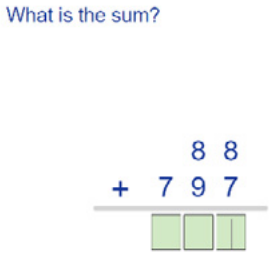
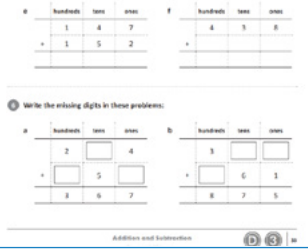
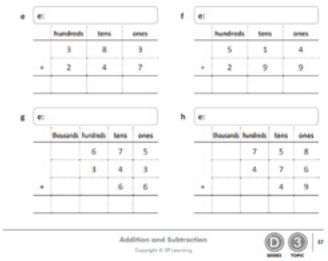
When assigning activities with addition and subtraction calculations that do not have spaces for recording any regroupings, consider getting pupils to record the calculation in their Maths books, then answer the question on Mathletics. Pupils can then self-mark their work after each question, receiving instant feedback to support their learning. If they realise they have made a mistake they can do the correction in their book immediately. In Mathletics, pupils will be shown the correct answer. If they cannot see where they have gone wrong in their calculations they can access the support button in the activity and it will take them through the exact question they have just answered incorrectly.

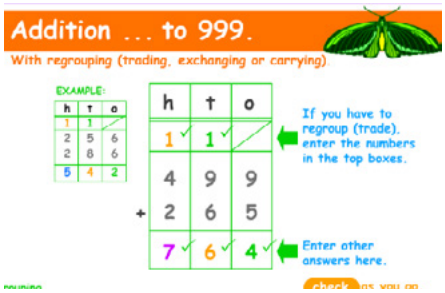
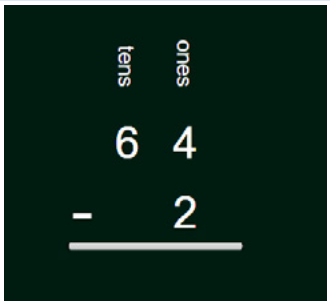
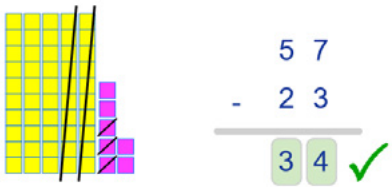
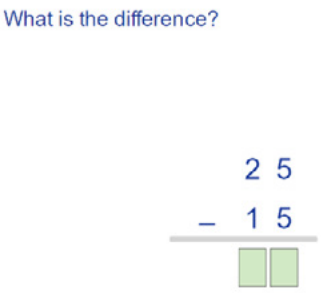
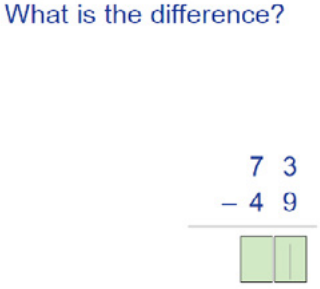
Encourage students to use the strategies they are being taught in class and to use manipulatives if needed.

If they are not recording in their Maths books, it is necessary that pupils have whiteboards or other means of recording so that they can record their working out and use the strategies they are learning in class.

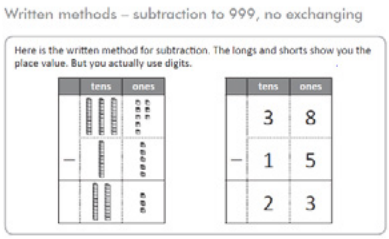
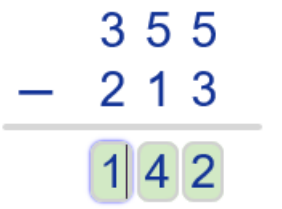
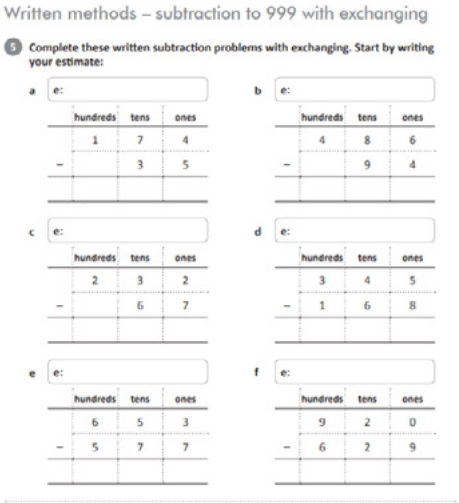
With most activities, including these calculation activities, questions are generated from a pool of questions allowing students to complete the activities more than once without getting the same set of questions.

Mathletics activities addition review section: Addition (written method) activities with up to 2-digit numbers and/or without exchanging tens.	
	Topic: Add and Subtract – Written (Review) Activity: *Columns that Add* This activity includes adding 1-digit and 2-digit numbers - no crossing 10s. Activity: *Add Two 2-Digit Numbers* Activity: *Add Three 2-Digit Numbers*
	Topic: Add and Subtract – Written (Review) Activity: *Column Addition* This activity includes adding 2 digit and 1 & 2-digit numbers – crossing 10s.
	Topic: Add and Subtract – Written (Review) Activity: *Add Numbers: Exchange a Ten (UK)* This activity includes adding two 2-digit numbers – crossing 10s.
Small steps: • Add and subtract a 2-digit and 3-digit number – not crossing 10 or 100 • Add a 2-digit and 3-digit number – crossing 10 or 100 • Add two 3-digit numbers – not crossing 10 or 100 • Add two 3-digit numbers – crossing 10 or 100	
	eBook, D series: Addition and Subtraction, Topic 3, page 33 Addition of 2-digit and 3-digit numbers – with no crossing 10 or 100. eBook, D series: Addition and Subtraction, Topic 3, page 37 Addition of 2-digit and 3-digit numbers – crossing 10. Includes practise of adding two 2-digit numbers with a 3-digit number – crossing 10 and 100.

	Topic: Add and Subtract – Written Activity: *Add Multi-Digit Numbers 1 (UK)* Pupils add a 2-digit and 3-digit number together – crossing 10s.
	Topic: Add and Subtract – Written Activity: *Add 3-Digit Numbers* This activity provides activites in adding two 3-digit numbers - not crossing 10s.
	Rainforest Maths – Level D – Addition to 999 – no regrouping. Models adding two 3-digit numbers using an abacus to represent the 100s, 10s and 1s.
	eBook, D series: Addition and Subtraction, Topic 3, page 33 Last part of page 33 shows addition of two 3-digit numbers with no crossing 10.
	eBook, D series: Addition and Subtraction, Topic 3, page 37 Last part of page 37 shows addition of two 3-digit numbers – crossing 10 and 100.
	Topic: Add and Subtract – Written Activity: *Strategies for Column Addition (UK)* This activity begins with addition of 1-digit numbers – crossing 10s. The support encourages pupils to first look for digits that total 10. The next level involves addition of three 2-digit numbers. The harder level involves the addition of three 3-digit numbers – crossing 10s.

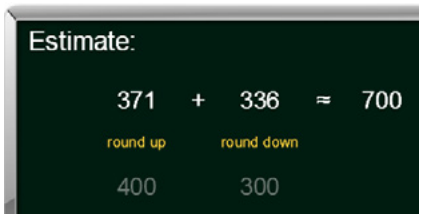
	Rainforest Maths — Level D — Addition to 999 – with regrouping. Pupils can check as they work through a calculation, so they can spot where they make an error.
Mathletics activities subtraction review section: **Subtraction (written method) activities with up to 2-digit numbers and/or without crossing tens.**	
	Topic: Add and Subtract – Written (Review) Activity: *Columns that Subtract* Pupils begin with subtracting 1-digit numbers from 1-digit numbers, then 1-digit from 2-digit numbers and finally 2-digit from 2-digit numbers – no exchanges.
	Topic: Add and Subtract – Written (Review) Activity: *Subtract Numbers* This activity uses subtracting 2-digit numbers from 2-digit numbers – no exchange.
	Topic: Add and Subtract – Written (Review) Activity: *2-Digit Differences* This activity also models 2-digit numbers subtracted from 2 digit numbers – no exchange.
	Topic: Add and Subtract – Written (Review) Activity: *2-Digit Differences: Exchanging (UK)* Pupils subtract two 2-digit numbers – crossing 10s.

Small steps:
- Add and subtract a 2-digit and 3-digit number – not crossing 10 or 100
- Subtract a 2-digit number from a 3-digit number – cross the 10 or 100
- Subtract a 3-digit number from a 3-digit number – no exchange
- Subtract a 3-digit number from a 3-digit number – exchange

	eBook, D series: Addition and Subtraction Topic 3, page 38 Explains subtraction of two 2-digit numbers with no exchanges. Exercises include subtraction of two 2-digit numbers and also subtraction of a 2-digit number from a 3-digit number (no exchanges).
	Topic: Add and Subtract – Written Activity: *3-Digit Differences* Pupils subtract two 3-digit numbers with no exchange.
	Rainforest Maths — Level D — Subtraction to 999 – no regrouping Models subtraction using 100s, 10s and 1s.
	eBook, D series: Addition and Subtraction Topic 3, page 42 Subtraction of a 2-digit number from a 3-digit number and then subtraction with two 3-digit numbers — with exchanges.

 |

Small step: Estimate answers to calculations



Topic: Add and Subtract – Mental

Activity: *Estimate Sums*

Pupils round numbers to support with estimation.

Activity: *Estimate Differences*

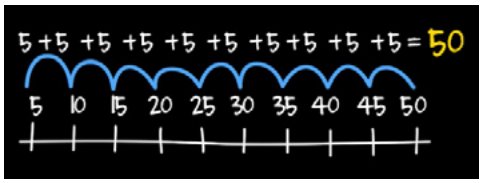
Similar activity — pupils round numbers up or down and then subtract to estimate the difference.

Examples of alignment to Mathletics

Week 9-11 Number: Multiplication and Division

National Curriculum Objectives	WRMH Small Steps
▸ Count from 0 in multiples of 4, 8, 50 and 100. ▸ 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 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	▸ Multiplication – equal groups ▸ Multiplying by 3 ▸ Dividing by 3 ▸ 3 times-table ▸ Multiplying by 4 ▸ Dividing by 4 ▸ 4 times-table ▸ Multiplying by 8 ▸ Dividing by 8 ▸ 8 times-table

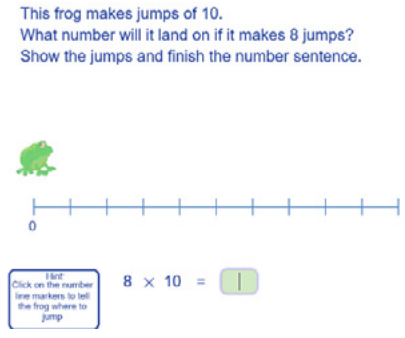
Small step: Multiplication - equal groups



Topic: Multiply and Divide

Activity: *Frog Jump Multiplication*

The video explains how multiplication can be seen as repeated addition. It models this on a number line and shows the jumps recorded as a repeated addition and then the related multiplication.



Topic: Multiply and Divide

Activity: *Frog Jump Multiplication*

This is the activity which is supported by the video above. It models multiplication as repeated addition of the same number.

Small step: Multiplying by 3

5 groups of 3 = 15 ✓

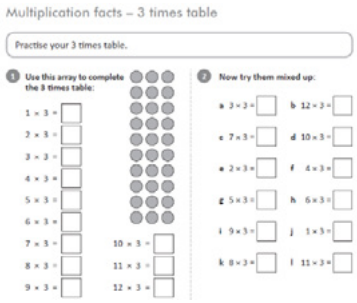
Topic: Multiply and Divide
Activity: *Groups of Three*
This activity models multiplying by 3 with arrays.

Small step: Dividing by 3

12 shared between 3 = | each

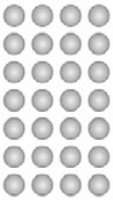
Topic: Multiply and Divide
Activity: *Dividing Threes*
This activity shows how the visual of an array supports both the understanding of multiplication, and also division, as sharing.

Small step: 3 times-table



eBook, D series: Multiplication and Division, page 19
Exercises to support learning 3 times-table facts.

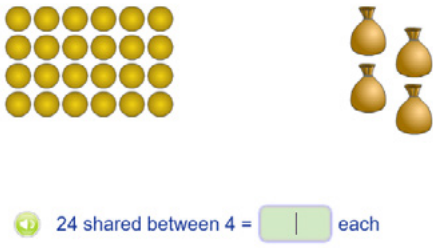
Small step: Multiplying by 4



7 groups of 4 = 28 ✓

Topic: Multiply and Divide
Activity: *Groups of Four*
This activity models multiplying by 4 with arrays.

Small step: Dividing by 4

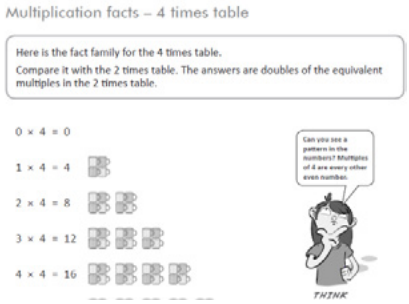


Topic: Multiply and Divide

Activity: *Dividing Fours*

The activity models division by showing how arrays support an understanding of sharing. Each row would go into one of the 4 bags.

Small step: 4 times-table

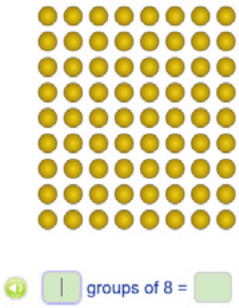


eBook, D series: Multiplication and Division, page 13

Shows the 4 times-table and links it to previous learning of the 2 times-table.

Activities to practise and build up recall of 4 times-table facts.

Small step: Multiplying by 8

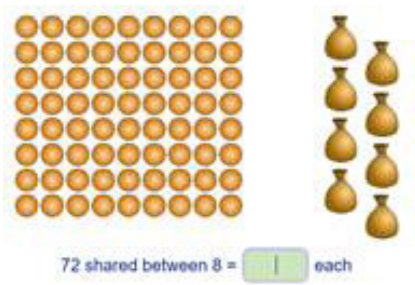


Topic: Multiply and Divide

Activity: *Groups of Eight*

The activity models multiplying by 8 with arrays.

Small step: Dividing by 8

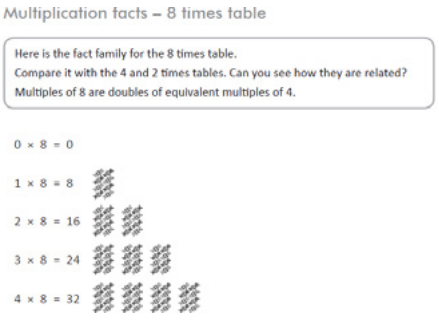


Topic: Multiply and Divide

Activity: *Dividing Eights*

The activity models division by showing how arrays support an understanding of sharing. Each row would go into one of the 8 bags.

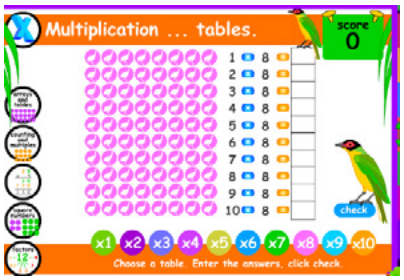
Small step: 8 times-table



eBook, D series: Multiplication and Division, page 16

Encourages pupils to look for patterns in the 8 times-table.

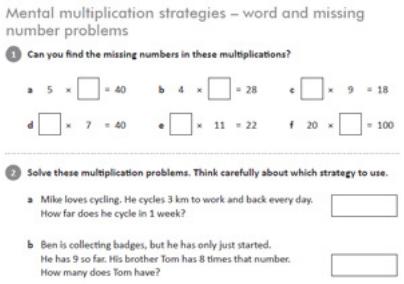
Activities support learning of 8 times-table facts.



Rainforest Maths — Level D — Multiplication

Pupils can select any of the times-table to practise.

Problem solving and reasoning with multiplication and division

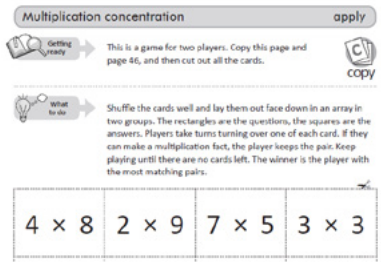


eBook, D series: Multiplication and Division, page 28+

Exercises to apply learning of times-table facts to solve questions with missing numbers and word problems.

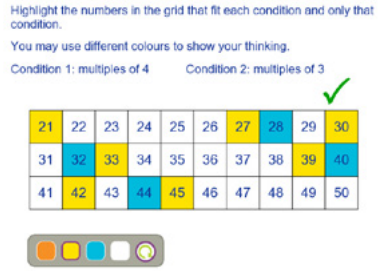
Page 34

Exercises that encourage pupils to apply their learning of related division facts when solving problems.



eBook, D series: Multiplication and Division, page 44

At the back of this eBook are several games for pupils to play which help develop fluency and understanding of times-table facts.



Topic: Problem Solving

Activity: *Fit the conditions 1*

Pupils apply their knowledge of times-table, factors, and skip counting to highlight the grid, omitting numbers which fit both conditions.

Additional Mathletics resources for learning and practising times tables:

eBook, D series: Freckles

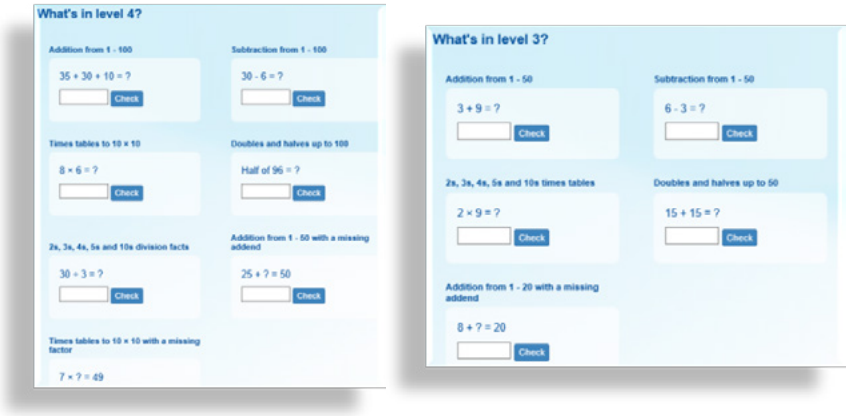
This rich problem unfolds as a series of videos that pose questions based on decorating a cake. Students are encouraged to apply their knowledge of multiplication and arrays.

A printable of the problem is provided for pupils.

Times Tables Toons

Times Tables Toons has catchy songs to support the learning of all the times tables.

Live Mathletics



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

To support progress in Year 3, challenge pupils to use Level 3 and Level 4 of Live Mathletics.

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.

(Note: Live Mathletics levels are a sliding scale, with no relationship to classes or old National Curriculum levels.)

Mathletics

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3P Learning

For more information about Mathletics, contact our friendly team.

3P Learning Ltd
4th Floor, Bull Wharf, Redcliff Street,
Bristol, BS1 6QR.
Tel: 0117 370 1990
Email: support@3plearning.co.uk
www.mathletics.com