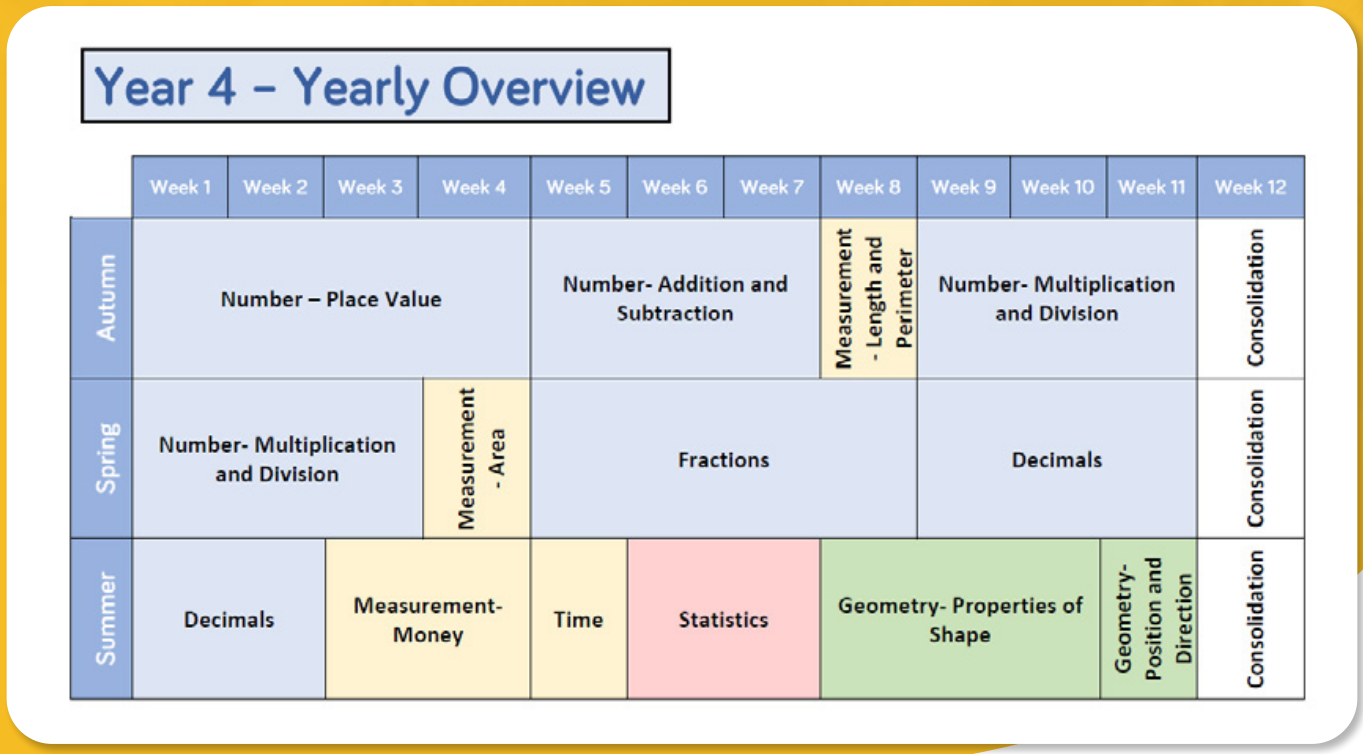
Mathletics

White Rose Maths (WRM) 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-learningyears-1-to-6-block-1-place-value-11652624

Year 4

Year 4 White Rose Maths (WRM)

Autumn Scheme of Learning, 2017

Alignment with Mathletics

Contents

Examples of alignment to Mathletics

Weeks 1-4 Number: Place Value 01

Weeks 5-7 Number: Addition and Subtraction 06

Weeks 8 Measurement: Length and Perimeter 10

Weeks 9-11 Number: Multiplication and Division 13

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 04 WRMH Autumn Aligned

Data-Driven Teaching and Learning

Differentiation

Feedback and Reflection

Student Growth

Blended Learning

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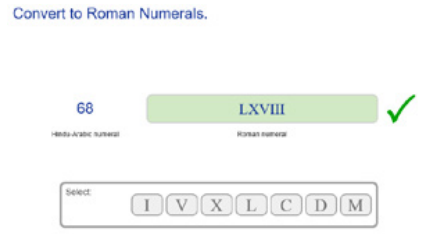
Alignment with Mathletics

Examples of alignment to Mathletics

Weeks 1-4 Number: Place Value

National Curriculum Objectives	WRMH Small Steps
▸ Count in multiples of 6, 7, 9, 25 and 1000. ▸ Find 1000 more or less than a given number. ▸ Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones). ▸ Order and compare numbers beyond 1000. ▸ Identify, represent and estimate numbers using different representations. ▸ Round any number to the nearest 10, 100 or 1000. ▸ Solve number and practical problems that involve all of the above and with increasingly large positive numbers. ▸ Count backwards through zero to include negative numbers.	▸ Roman numerals to 100 ▸ Round to the nearest 10 ▸ Round to the nearest 100 ▸ Count in 1,000s ▸ 1,000s, 100s, 10s and 1s ▸ Partitioning ▸ Number line to 10,000 ▸ 1,000 more or less ▸ Compare numbers ▸ Order numbers ▸ Round to the nearest 1,000 ▸ Count in 25s ▸ Negative numbers

Small step: Roman numerals to 100

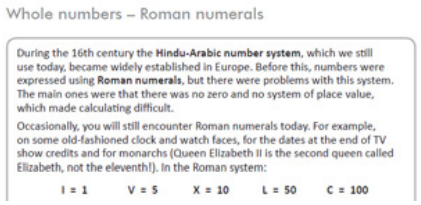


Topic: Number and Place Value

Activity: *Converting to Roman Numerals to 100*

Support button shows pupils the value of each symbol and explains how to convert numbers to Roman numerals.

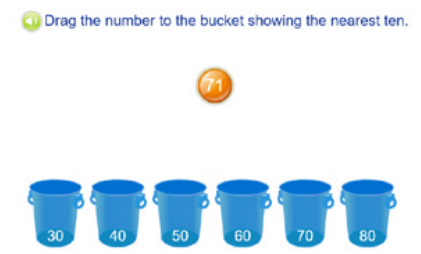
Activity supports practising converting to Roman numerals.



eBook, E series: Whole Numbers and Place Value, page 10

Gives brief history of Roman numerals and explains how to convert to and from Roman numerals. Provides exercises to convert from Roman numerals.

Small step: Round to the nearest 10



Topic: Number and Place Value (Rounding)

Activity: *Nearest 10?*

This activity supports rounding of 2-digit numbers to the nearest 10.

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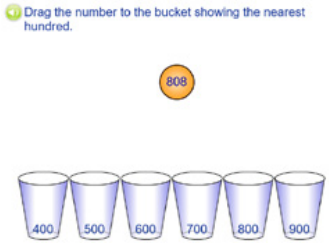
Small step: Round to the nearest 100

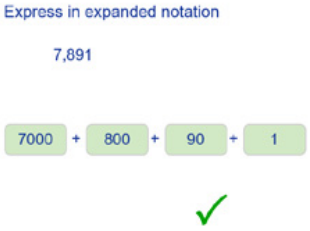


Topic: Number and Place Value (Rounding)

Activity: *Nearest 100?*

This activity involves pupils dropping a counter into the cup displaying the nearest 100.

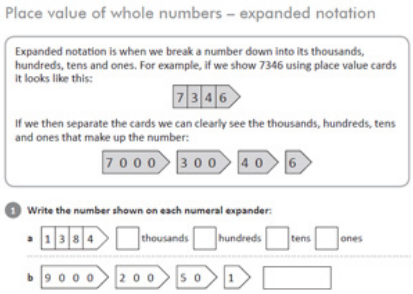
Small step: 1,000s, 100s, 10s and 1s



Topic: Number and Place Value

Activity: *Expanding Numbers*

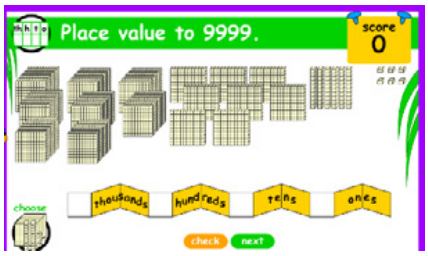
This adaptive activity moves from expanded notation of 2-digit numbers, to 3 and 4-digit numbers.



eBook, E series: Whole Numbers and Place Value

Models place value with 4-digit numbers using both an abacus and place value arrow cards.

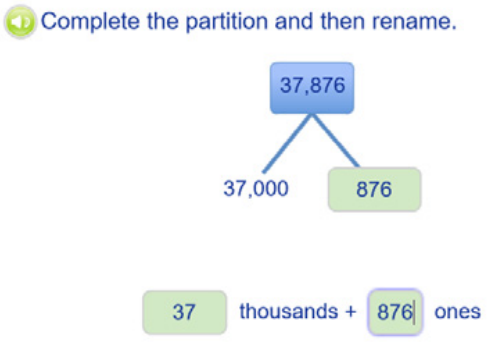
Includes exercises to practise partitioning numbers into 1,000s, 100s, 10s and 1s.



Rainforest Maths — Level E — Place value to 9,999

Models 4-digit numbers — partitioning into 1,000s 100s, 10s and 1s.

Small step: Partitioning



Topic: Number and Place Value

Activity: *Partition and Rename 3*

This activity gets pupils to apply their understanding of 1,000s, 100s, 10s and 1s and to look at other ways of partitioning which requires the understanding that 1,000 is actually 10 x 100 or 100 x 10 etc.

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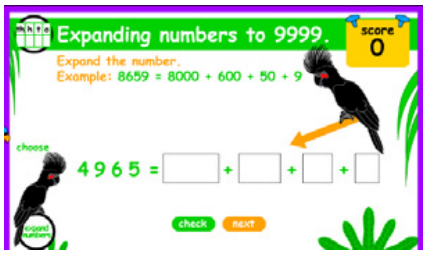
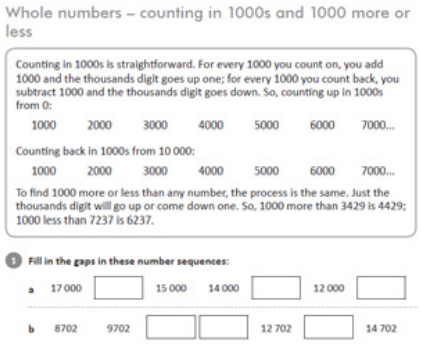
Alignment with Mathletics



Rainforest Maths — Level E — Expanding numbers to 9,999

Activity to practise expanding 4-digit numbers into 1,000s, 100s, 10s and 1s.

Small step:
- 1,000 more or less
- Count in 1,000

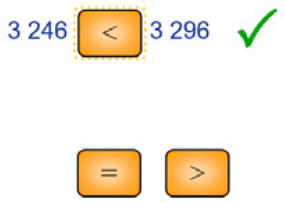


eBook, E series: Whole Numbers and Place Value, page 7

Explains and models counting on and back in 1,000s.

Activities to practise 1,000 more or less.

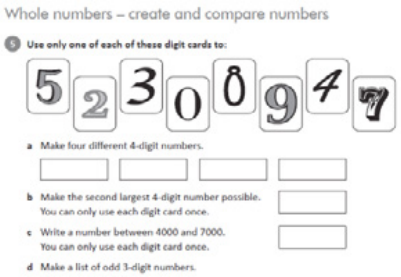
Small step: Compare numbers



Topic: Number and Place Value

Activity: *Greater Than or Less Than?*

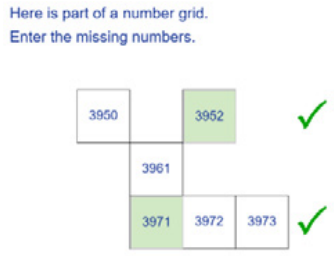
This adaptive activity begins with the comparison of two 2-digit numbers and moves on to 3-digit and 4-digit numbers. Uses the <, > and = symbols.



eBook, E series: Whole Numbers and Place Value, page 6+

Exercises to encourage pupils to reason, using their knowledge of place value to 4+ digits.

Small step: Order numbers



Topic: Number and Place Value

Activity: *Missing Numbers 2*

Activity requires pupils to apply their understanding of number and place value in order to fill in the missing numbers (4 digits).

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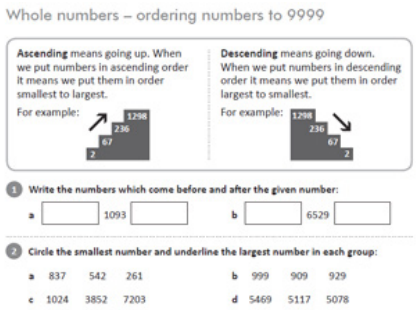
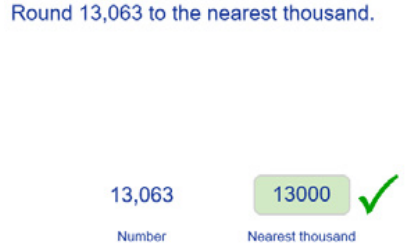
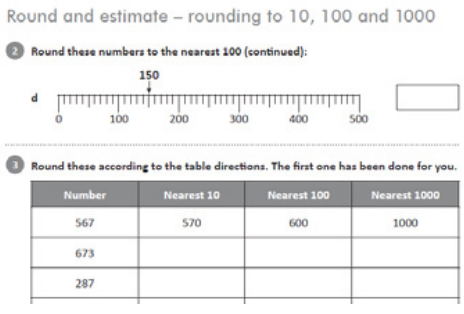
Alignment with Mathletics

	eBook, E series: Whole Numbers and Place Value, page 3+ Explains ascending and descending order. Includes exercises to practise putting 3-digit and 4-digit numbers in order.
	Rainforest Maths — Level E — Ordering numbers to 9,999 Activity supported by 100 square — 4-digit numbers.
Small step: Round to the nearest 1,000	
	Topic: Number and Place Value (Rounding) Activity: *Nearest 1000?* Pupils round the number to the nearest 1,000.
	Topic: Number — Place Value and Rounding Activity: *Rounding Numbers* Adaptive activity which begins with rounding to the nearest 10 and moves on to 3-digit, 4- and 5-digit numbers and rounding to nearest 100 and 1,000.
	eBook, E series: Number and Place Value, page 21 Explains, models and provides exercises to practise rounding to nearest 10, 100 and 1,000.

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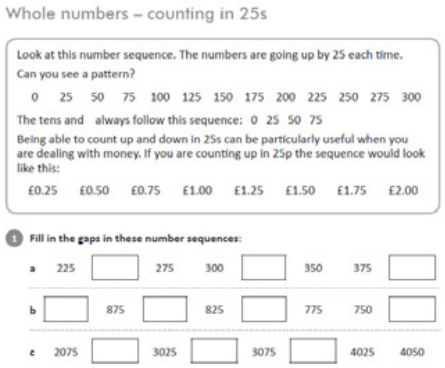
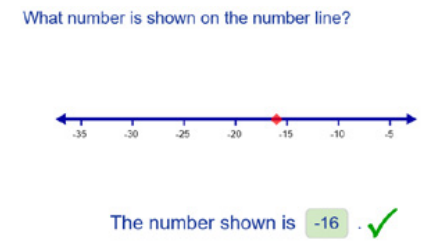
Small step: Count in 25s



eBook, E series: Number and Place Value, page 8

Explains, models and gives exercises to practise counting in 25s.

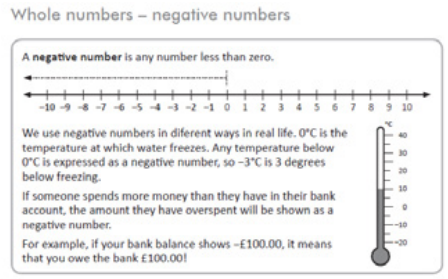
Small step: Negative numbers



Topic: Number and Place Value

Activity: *Integers on a Number Line*

Pupils have to enter the number represented on the number line. It provides a range of scales.



eBook, E series: Whole Numbers and Place Value, page 9

Explains negative numbers, provides examples and then exercises to practise the identification of negative numbers.

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Alignment with Mathletics

Examples of alignment to Mathletics

Weeks 5-7 Number: Addition and Subtraction

National Curriculum Objectives	WRMH Small Steps
▸ Add and subtract numbers with up to 4 digits using the formal 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.	▸ Add and subtract 1s, 10s, 100s and 1000s ▸ Add two 4-digit numbers – no exchange ▸ Add two 4-digit numbers – one exchange ▸ Add two 4-digit numbers – more than one exchange ▸ Subtract two 4-digit numbers – no exchange ▸ Subtract two 4-digit numbers – one exchange ▸ Subtract two 4-digit numbers – more than one exchange ▸ Efficient subtraction ▸ Estimate answers ▸ Checking strategies

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. 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.

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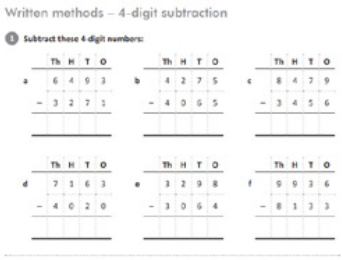
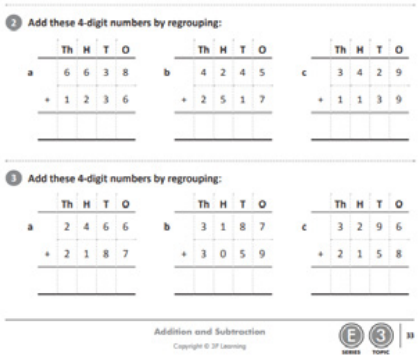
Small steps: • Add and subtract 1s, 10s, 100s and 1000s • Add two 4-digit numbers – no exchange • Add two 4-digit numbers – one exchange • Add two 4-digit numbers – more than one exchange	
	Rainforest Maths — Level E — Addition to 9,999 Models addition with an abacus – no exchanges.
	eBook, E series: Addition and Subtraction, page 33 Addition of two 4-digit numbers with no exchanges.
	eBook, E series: Addition and Subtraction, page 33 Addition of two 4-digit numbers with one exchange and then two exchanges.
	Rainforest Maths — Level E — Addition to 9,999 Exercises for adding two 4-digit numbers with exchanges.
	Topic: Addition and Subtraction Activity: *Adding Colossal Columns (UK)* Adaptive activity which works through adding 3-digit numbers with 2-digit numbers, crossing 10 and 100, then moves on to adding a 4-digit number with a 3-digit number, crossing 10 and 100.

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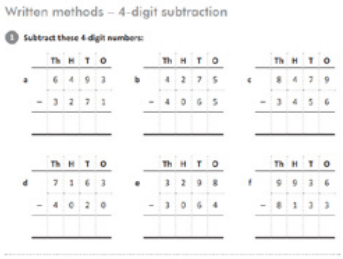
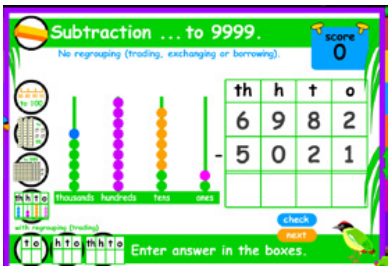
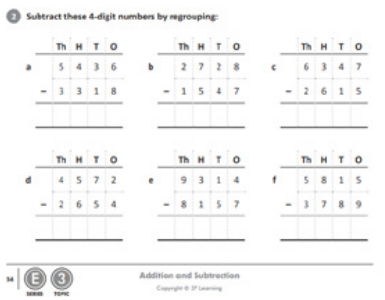
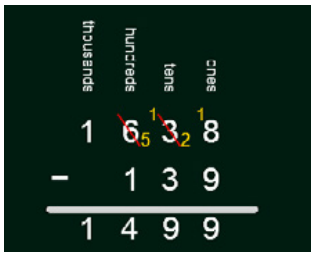
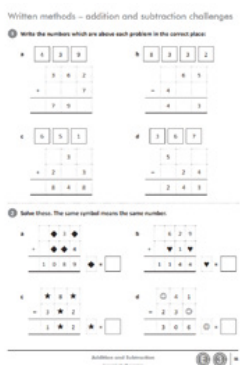
Small steps: • Subtract two 4-digit numbers – no exchange • Subtract two 4-digit numbers – one exchange • Subtract two 4-digit numbers – more than one exchange	
	eBook, E series: Addition and Subtraction, page 44 Subtraction of two 4-digit numbers with no exchanges necessary.
	Rainforest Maths — Level E: Subtraction to 9,999 Subtraction exercises where no exchanges necessary.
	eBook, E series: Addition and Subtraction, page 34 Subtraction with two 4-digit numbers. One exchange and then two exchanges necessary.
	Topic: Addition and Subtraction Activity: *Subtracting Colossal Columns (UK)* Adaptive activity which works through subtraction with exchanges necessary for two 3-digit numbers before moving on to 4-digit numbers.
	eBook, E series: Addition and Subtraction, page 35 Addition and subtraction challenges to encourage a deeper understanding of the written method.

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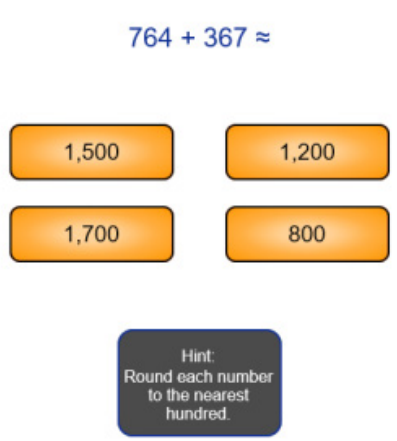
Small step: Estimate answers	
	Topic: Addition and Subtraction Activity: *Estimate Sums* Pupils round numbers to the nearest 100 to estimate answers to additions. Activity: *Estimate Differences* Similar activity for estimating to support subtraction.

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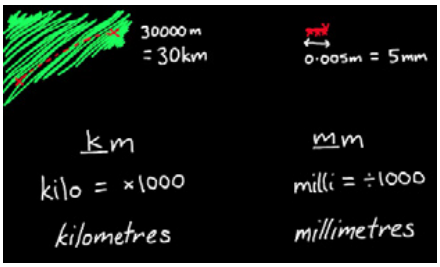
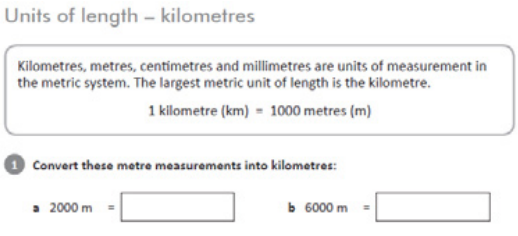
Examples of alignment to Mathletics

Weeks 8 Measurement: Length and Perimeter

National Curriculum Objectives	WRMH Small Steps
▸ Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. ▸ Convert between different units of measure [for example, kilometre to metre].	▸ Kilometres ▸ Perimeter on a grid ▸ Perimeter of a rectangle ▸ Perimeter of rectilinear shapes

Small step: Kilometres	
	Topic: Length and Perimeter Activity: *Metres and Kilometres* This video explains the relationships between units of measurement for length (click the lightbulb to access the support video in Mathletics).
2,000 m = 2 km ✓	Topic: Length and Perimeter Activity: *Metres and Kilometres* Pupils practise converting between metres and kilometres.
	Rainforest Maths — Level F — Length: Conversions This exercise practises converting between millimetres, centimetres, metres and kilometres.
	eBook, G series: Length, Perimeter and Area, page 9 Exercises which recap centimetres, millimetres and metres and how to convert between them (includes exercises for converting between kilometres and metres).

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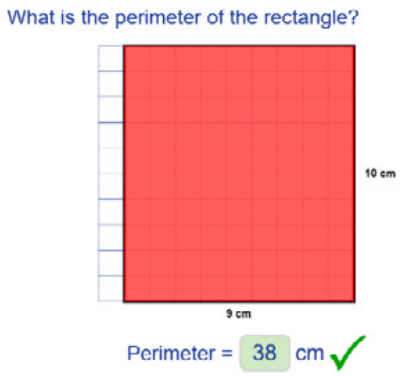
Small step: Perimeter on a grid

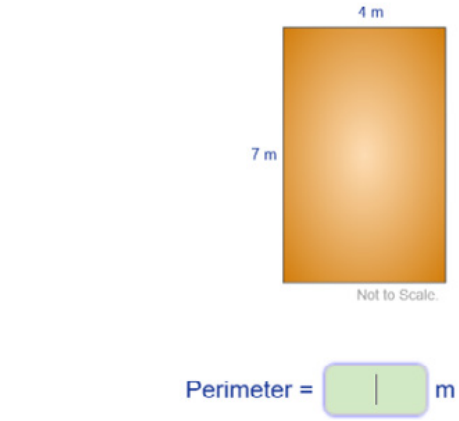


Topic: Length and Perimeter

Activity: *Perimeters of Shapes*

Pupils find the perimeter of squares and rectangles displayed on a grid.

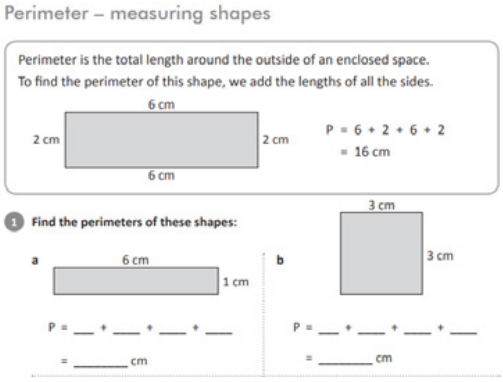
Small step: Perimeter of a rectangle



Topic: Length and Perimeter

Activity: *Calculate Perimeter of Squares and Rectangles*

Shapes are shown with side dimensions in metric units. The support explains how to calculate the perimeter.



eBook, E series: Length, Area and Perimeter, page 11

Explains how to measure the perimeter of a shape and includes exercises to practise finding the perimeter in metric units.

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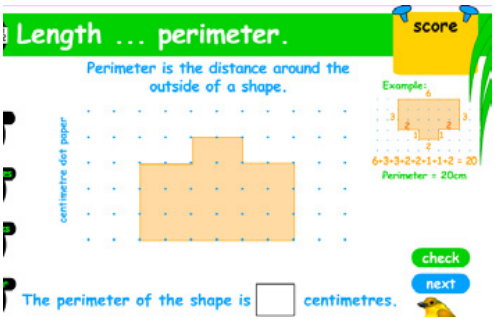
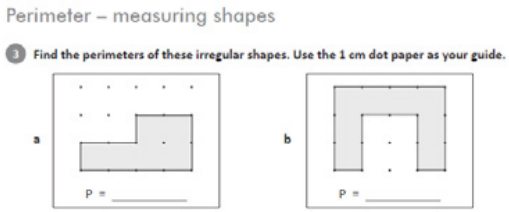
Small step: Perimeter of rectilinear shapes	
	Rainforest Maths — Level E — Length: Perimeter Calculate the perimeter of rectilinear shapes in metric units.
	eBook, G series: Length, Area and Perimeter, page 12 Exercises to find out the perimeter of irregular rectilinear shapes using a grid for support.

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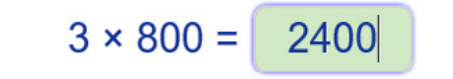
Alignment with Mathletics

Examples of alignment to Mathletics

Weeks 9-11 Number: Multiplication and Division

National Curriculum Objectives	WRMH Small Steps
▸ Recall and use multiplication and division facts for multiplication tables up to 12 × 12. ▸ Count in multiples of 6, 7, 9, 25 and 1000. ▸ 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. ▸ 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.	▸ Multiply by 10 ▸ Multiply by 100 ▸ Divide by 10 ▸ Divide by 100 ▸ Multiply by 1 and 0 ▸ Divide by 1 ▸ Multiply and divide by 6 ▸ 6 times-table and division facts ▸ Multiply and divide by 9 ▸ 9 times-table and division facts ▸ Multiply and divide by 7 ▸ 7 times-table and division facts

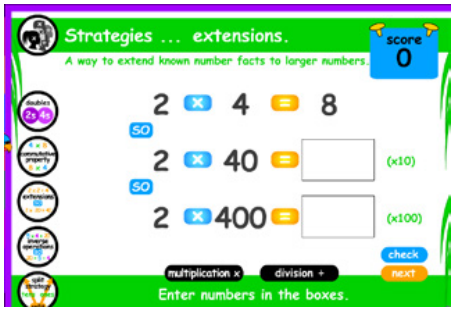
Small steps:
- Multiply by 10
- Divide by 10
- Multiply by 100
- Divide by 100



Topic: Multiplication and Division

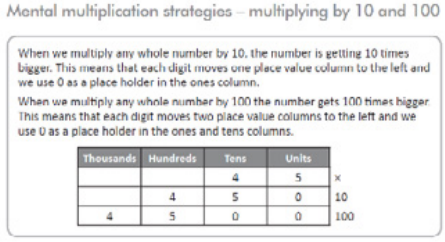
Activity: *Multiply Multiples of 10*

This adaptive activity begins by multiplying by multiples of 10 up to 100 and then extends to multiples of 100.



Rainforest Maths — Level E: Multiplication and Division Strategies

Pupils are encouraged to use known facts to multiply numbers by 10s or 100s. Division problems are also included.



eBook, E series: Multiplication and Division, Topic 3, page 17

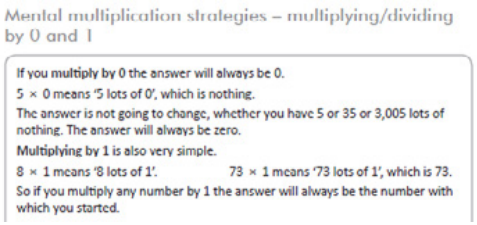
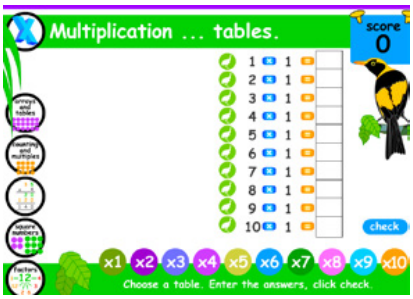
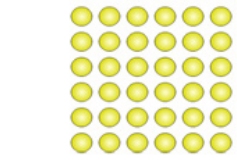
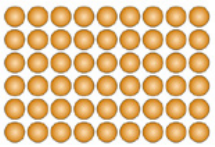
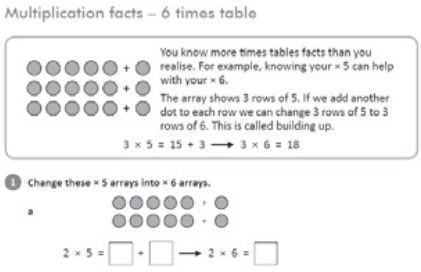
Explains multiplication by 10 and 100 showing digits moving across place value markers.

Exercises to practise and secure understanding.

Year 4 White Rose Maths (WRM)

Autumn Scheme of Learning, 2017

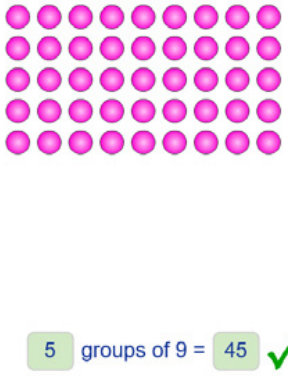
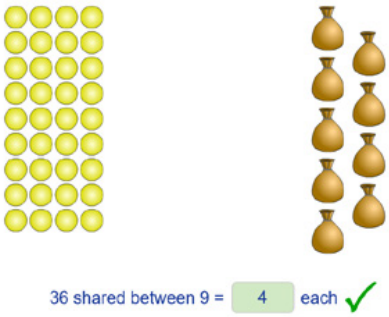
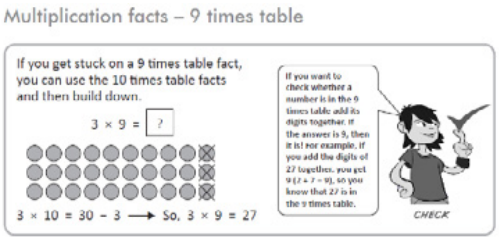
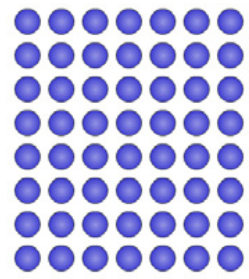
Alignment with Mathletics

Small steps: • Multiply by 1 and 0 • Divide by 1	
	eBook, E series: Multiplication and Division, Topic 3, page 19 Explains multiplying by 0 and 1. Exercises to secure understanding.
	Rainforest Maths – Level E: Multiplication Practise multiplication tables, including 1 times-table.
Small steps: • Multiply and divide by 6 • 6 times-table and division facts	
 	Topic: Multiply and Divide Facts Activity: *Groups of Six* Models multiplying by 6 with arrays.
  	Topic: Multiply and Divide Facts Activity: *Dividing Sixes* Shows how the visual of an array supports both the understanding of multiplication, and also division, as sharing.
	eBook:, G series: Multiplication and Division, page 7 Exercises to secure understanding of the 6 times-table.

Year 4 White Rose Maths (WRM)

Autumn Scheme of Learning, 2017

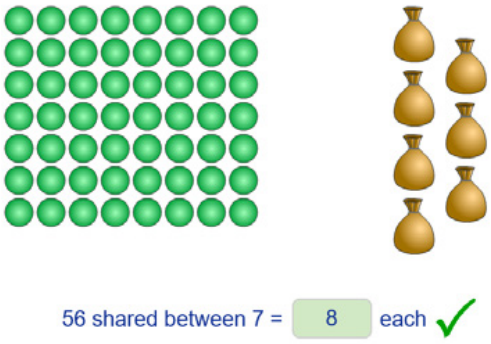
Alignment with Mathletics

Small steps: • Multiply and divide by 9 • 9 times-table and division facts	
 	Topic: Multiply and Divide Facts Activity: *Groups of Nine* Uses the visual of an array to support understanding of the 9 times-table.
 	Topic: Multiply and Divide Facts Activity: *Dividing Nines* Uses the visual of an array to show the relationship with multiplication. The idea of placing each row in a bag supports the understanding of division as sharing.
 	eBook, E series: Multiplication and Division, Topic 1, page 12 Exercises to secure understanding of 9 times-table.
Small steps: • Multiply and divide by 7 • 7 times-table and division facts	
 	Topic: Multiply and Divide Facts Activity: *Groups of Seven* Uses arrays to model multiplication by 7.

Year 4 White Rose Maths (WRM)

Autumn Scheme of Learning, 2017

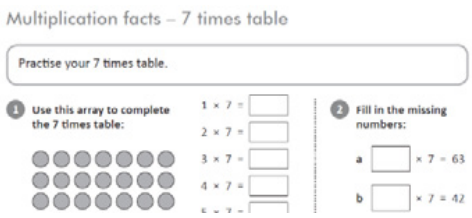
Alignment with Mathletics



Topic: Multiply and Divide Facts

Activity: *Dividing Sevens*

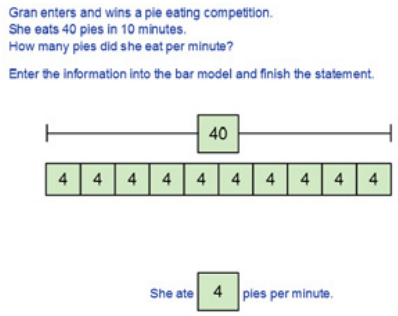
Visual with array shows the relationship between multiplication and division. Each row is related to a bag which shows division as sharing.



eBook, E series: Multiplication and Division, Topic 1, page 9

Exercises to secure understanding of 7 times-table.

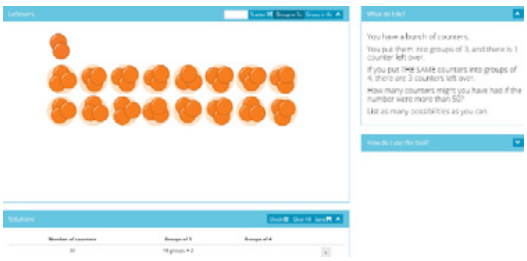
Mental multiplication strategies and problem solving



Topic: Multiplication and Division

Activity: *Bar Model × ÷*

This activity shows pupils how to use the Bar Model to solve problems involving multiplication and division. The support area takes them through the process step by step and helps them learn from their mistakes if they make any.



eBooks, E series: Coin Count (rich task)

Supports the understanding of multiplication, multiples and factors. The interactive in this rich task allows pupils to explore the outcomes when numbers are divided by 3 or by 4. Included is a printable student sheet for pupils to record their thinking and notes to guide the teacher.

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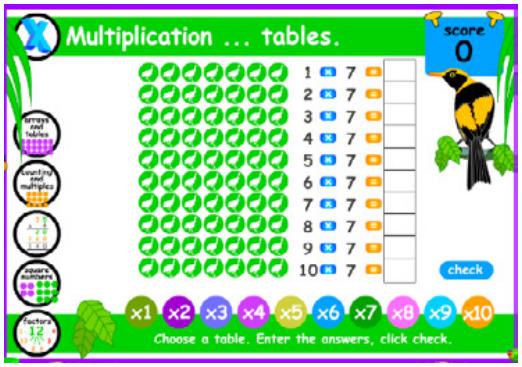
Autumn Scheme of Learning, 2017

Alignment with Mathletics

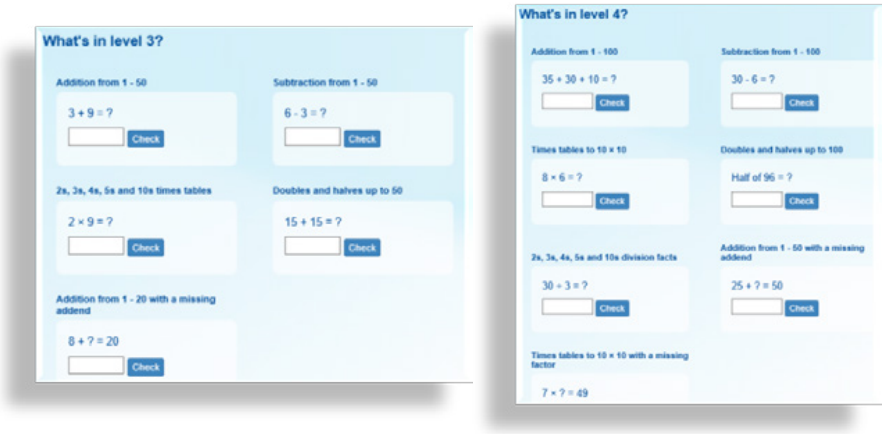
Mathletics — practising times-tables	
 	**Rainforest Maths: Level E — Multiplication** Pupils can select any times-tables from x1 to x10 and practise them in order, with the visual of an array. They can also practise skip counting in multiples from 1 to 10.
	**Times Tables Toons** Times Tables Toons has catchy songs to support the learning of all the times-tables.

Year 4 White Rose Maths (WRM)

Autumn Scheme of Learning, 2017

Alignment with Mathletics

Live Mathletics



Live Mathletics engages pupils in 1 minute games where they are challenged to recall Maths facts.

To support progress in Year 4, 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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