Mathletics White Rose Maths (WRM) Spring Scheme of Learning, 2018 Alignment with Mathletics

Year 4 – 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			Numb	er- Additio Subtractio	on and n	Measurement - Length and Perimeter	Numbe a	er- Multip nd Divisio	lication n	Consolidation	
Spring	Number- Multiplication and Division		Fractions		Decimals		Consolidation					
Summer	Deci	mals	Measu Me	irement- oney	Time	Stati	stics	Geomet	netry- Properties of Shape		Geometry- Position and Direction	Consolidation

This alignment document has been based on the White Rose Maths (WRM) scheme of learning available on the TES website. It contains the alignment information for the Spring Scheme of Learning.







Spring Scheme of Learning, 2018



Alignment with Mathletics

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Purpose:

The aim of this document is to support Mathletics teachers, who use the WRM schemes 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 corresponding WRM 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 is contained in this document.

Links to Rainforest Maths, which can be found in the 'Play' area in the Mathletics student interface, have also been included. This resource has engaging 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 this WRM scheme of learning. You may wish to set this course for your class/groups.

England Yr 04 WRM Autumn and Spring Aligned









Blended Learning

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Examples of alignment to Mathletics Block 1 (Weeks 1-3) Number: Multiplication and Division

National Curriculum Objectives	WRM Small Steps
Recall and use multiplication and division facts for multiplication tables up to 12 × 12.	
Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.	 II and I2 Times-table Multiply 3 Numbers Factor Pairs Efficient Multiplication
Recognise and use factor pairs and commutativity in mental calculations.	 Written Methods Multiply 2-digits by 1-digit
Multiply two digit and three digit numbers by a one digit number using formal written layout.	 Multiply 2-digits by 1-digit Divide 2-digits by 1-digit (1)
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.	 Divide 2-digits by 1-digit (2) Divide 3-digits by 1-digit Correspondence Problems

Small step: 11 and 12 Times-table



Topic: Multiply and Divide Activity: *Multiplication Facts* Pupils practise all multiplication facts up to 12 x 12.

Multiplication facts – 11 times table



eBook, E series: Multiplication and Division, page 13

Pupils practise the 11 times-table, supported by an array. The page also includes questions out of order and word problems to consolidate understanding.

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actise your 12 times table.	
Use this array to complete the 12 times table:	1 × 12 =
	2 × 12 =
0000000000000	3 × 12 =
	4 × 12 =
	5 × 12 =
000000000000000	6 × 12 =
	7 × 12 =
	8 × 12 =
	9 × 12 =
000000000000	10 × 12 =
	11 × 12 =

eBook, E series: Multiplication and Division, page 14

Pupils practise the 12 times-table, supported by an array. It also includes questions out of order and word problems to consolidate understanding.

Mathletics

Small step: Multiply 3 Numbers



Topic: Multiply and Divide Activity: *Multiply 3 Single-Digit Numbers*

Pupils are encouraged to swap numbers around to make the multiplication problem easier.

eBook, E series: Multiplication and Division, page 20 Pupils work through an explanation of Commutative Law

Mental multiplication strategies – multiplying 3 numbers

types of calculation, the ord be the same. It is true for ac	ler of the nun ddition.	nbers doesn't r	natter. The a	nswer will
3	+ 4 = 7	4 + 3 = 7		
62 +	19 = 71	19 + 62 = 7	1	
The same is true for multipli	ication.			
5	× 2 = 10	$2 \times 5 = 10$	0	
8	× 7 = 56	7 × 8 = 5	6	
If you are multiplying more t	han two num	bers, the Comm	nutative Law	still applies.
$3 \times 2 \times 6 = 36$	6 × 2 ×	3 = 36	2 × 6 × 3	3 = 36
$2 \times 3 \times 6 = 36$	6 × 3 ×	2 = 36	3 × 6 × 2	2 = 36

Small step: Factor Pairs



Topic: Multiply and Divide Activity: *Factors*

and then practise some examples.

Pupils are required to find factor pairs for a given number and then list the factors in ascending order.

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Small step: Written Methods



Rainforest Maths – Level F – Multiplication ... by 1 digit (extended form)

Mathletics

Pupils practise multiplying a 2-digit number by a 1-digit number using the extended form.

Small step: Multiply 2-digits by 1-digit

Written methods - short multiplication

4 2 9

пiп



3 8

<u>H T O</u> <u>b</u> <u>H</u> T <u>O</u> c

eBook, E series: Multiplication and Division, page 42

Following an explanation of short multiplication, pupils work through a series of exercises to practise the concept, multiplying a 2-digit number by a 1-digit number.

Small step: Multiply 3-digits by 1-digit

H T O

2



Topic: Multiply and Divide Activity: *Multiply: 1-Digit Number*

Pupils practise multiplying 2-digit and 3-digit numbers by a 1-digit number with no exchanges.

Written methods - short multiplication

2 Solve these multiplications:



eBook E series: Multiplication and Division, page 43

Pupils practise multiplying 3-digit numbers by 1-digit numbers involving exchanges in either 1 or 2 columns.

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Written methods – short multiplication Image: Short multiplication is one way to solve a multiplication problem. First we use our mental strategies to estimate an easier problem: 3 x 150 - 450. The answer will be around 450. Image: Short multiplication. Image: Short multiplication is one way to solve a multiplication problem: 3 x 150 - 450. The answer will be around 450. Image: Short multiplication. Image: Short multiplication.

eBook, F series: Multiplication and Division, pages 24–25

Mathletics

Following an explanation of how to multiply a 3-digit number by a 1-digit number using short multiplication, pupils work through a series of exercises to practise the concept.

Small step: Divide 2-digits by 1-digit (1)

36



20

eBook, E series: Multiplication and Division, pages 36-37

These activities explain the concept of dividing a 2-digit number by 2 as halving, and then extends to division by 4 as halving and halving again. Exercises provide an opportunity to practise the concept.



Rainforest Maths – Level F – Strategies to multiply and divide ... doubles relationships

An array is used to support pupils' understanding of the relationship between dividing by 2 and dividing by 4. The exercise also models the relationships between dividing by 3 and 6 and 4 and 8, using halving as a strategy.

Small step: Divide 2-digits by <u>1-digit (2)</u>



Topic: Multiply and Divide Activity: *Remainders by Tables*

Using their knowledge of the multiplication facts, pupils divide a 2-digit number by a 1-digit number where the answer includes a remainder.

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135

5

115

eBook, E series: Multiplication and Division, pages 38-41

Division of 3-digit numbers by 1-digit numbers is explored using the strategy of splitting the 3-digit number into smaller (easier) multiples of the divisor.

On page 40–41 pupils apply their understanding of using the split strategy to solve word problems involving division.

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Rainforest Maths - Level F - Division

Pupils can select the first activity under the option of 3-digit numbers to practise dividing a 3-digit number by a 1-digit number with no remainders.

(Note: The first example may be a 2-digit number; click 'More' for a 3-digit number.)

Small step: Correspondence Problems

Leftovers

You have some counters.

You put them into groups of 3, and there is 1 counter left over.

- If you put THE SAME counters into groups of 4, there are 3 counters left over.
- a) How many counters could you have?
- b) How many different ways can you find to do this?
- c) How many counters might you have had if the total number of counters was more than 50?

List as many possibilities as you can.

eBook, E series: Leftovers (rich task)

Pupils explore division with remainders whilst coordinating 2 factors (3 and 4).

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Alignment with Mathletics

Examples of alignment to Mathletics Block 2 (Week 4) Measurement: Area

National Curriculum Objectives	WRM Small Steps
Find the area of rectilinear shapes by counting squares.	 What is Area? Counting Squares Making Shapes Comparing Area



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Small step: Comparing Area Which shapes have equal area? Topic: Area Activity: Equal Areas Count the squares. Pupils count the square centimetres to compare the area of squares and rectangles and find shapes that have an equal area. Back 📢 ich area is bigger Topic: Area Activity: Biggest Shape Count the Pupils count square centimetres to compare the area of squares and rectangles and find the shape with the bigger area. Back 📢

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Alignment with Mathletics

Examples of alignment to Mathletics Block 3 (Weeks 5–8) Fractions

National Curriculum Objectives	WRM Small Steps
Recognise and show, using diagrams, families of common equivalent fractions.	What is a Fraction?Equivalent Fractions (1)
Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	 Equivalent Fractions (2) Fractions Greater than 1 Count in Fractions
Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.	 Add 2 or More Fractions Subtract 2 Fractions Subtract from Whole Amounts
Add and subtract fractions with the same denominator.	Fractions of a QuantityCalculate Quantities



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Mathletics



eBook, E series: Fractions, pages 14–16

Pupils shade equivalent fractions using the visuals to help them record the pairs of equivalent fractions.

On pages 15–16 pupils play a paired game. Using printable game cards, each player turns over a fraction card. The player who places down the largest fraction wins both cards. If the fractions are equivalent, the players put down another 2 cards.

Small step: Fractions Greater than 1



Topic: Fractions Activity: *What Fraction Is Shaded 1?*

Pupils identify the fraction that is shaded identifying the number of wholes and parts left over. The fraction is recorded as a mixed number.

Fractions – mixed numbers and improper fractions



eBook, F series: Fractions, Decimals and Percentages, page 10

Pupils are introduced to the concept of mixed numbers being a whole number and a fraction. Pupils look at shaded shapes and record the whole number and the fraction. They then draw diagrams to show mixed numbers.



Rainforest Maths – Level E – Fractions

This activity models how fractions greater than 1 are written as a mixed number.

Small step: Add 2 or More Fractions



Topic: Fractions

Activity: Add Like Fractions

Pupils add 2 fractions where the denominators are the same. The support area reminds pupils that when the denominators are the same, the numerators can be added together.

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One quarter of 20 is 5.

Count how many are in one part of the placemat





by partitioning a rectangle and placing the correct number of counters in each section.

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eBook, E series: Fractions, pages 6-9

Pupils are shown the relationship between finding fractions of quantities and division. Models are used for support in the exercises that follow. Word problems are also included.

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Alignment with Mathletics

Examples of alignment to Mathletics Block 4 (Weeks 9–11) Decimals

National Curriculum Objectives	WRM Small Steps
 Recognise and write decimal equivalents of any number of tenths or hundredths. Find the effect of dividing a one or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Solve simple measure and money problems involving fractions and decimals to two decimal places. Convert between different units of measure [for example, kilometre to metre]. 	 Tenths & Hundredths Tenths as Decimals Tenths on a Place Value Grid Tenths on a Number Line Divide 1-digit by 10 Divide 2-digit by 10 Hundredths Hundredths as Decimals Hundredths on a Place Value Grid Divide 1 or 2-digits by 100
Small step: Tenths & Hundredths	
Fractions and decimals – introducing hundredths	

eBook, E series: Fractions, page 17

The concept of hundredths is introduced as a fraction, using hundredths shaded on a 100 square. Pupils identify, record and then order hundredths.

eBook, E series: Fractions, page 21

Pupils shade hundredths and tenths to represent equivalent amounts and explore the relationship between hundredths and tenths.

Small step: Tenths as Decimals

b out of

Fractions and decimals – writing tenths as decimals

Fractions can be written as decimals. This row of cubes shows 10 tenths:	
$\frac{6}{10}$ can be shown like this:	
6 10 as a decimal is 0.6 0 •	Tenths 6
The decimal point separates the whole We would write 1 or $\frac{10}{10}$ as 1.0	number from the decimal.

eBook, E series: Fractions, page 18

The concept of tenths as fractions and the way they can be written as decimals is explained and modelled.

The following exercises involve pupils identifying tenths and writing them as fractions.

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Small step: Tenths on a Place Value Grid



eBook, E series: Fractions, page 19

Question 5 on page 19 introduces pupils to recording tenths as decimals on a place value grid.

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Small step: Tenths on a Number Line



eBook, E series: Fractions, page 18

Question 1 involves pupils labelling tens on a number line and writing the equivalent decimals.

Small step: Hundredths as Decimals



This diagram shows 26

d Hundredths

Topic: Fractions

Activity: Decimals from Words to Digits 1

Pupils read numbers including tenths and hundredths and record the numbers using digits.

eBook, E series: Fractions, page 22

Pupils continue to explore the relationship between tenths and hundredths as they complete a table to record amounts as tenths, hundredths and decimals.

Small step: Hundredths on a Place Value Grid

1.5 is same as 1.50

Fractions can be written as decim As a decimal, this amount is written as: Ones Tenths Hundredti



Topic: Fractions Activity: *Decimal Place Value*

Pupils continue to develop their knowledge of decimal place value as they identify the digit in the tenths or hundredths place. The support area shows the places of the digits in a similar way to a place value grid.

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Live Mathletics engages pupils in 60-second real-time games, testing speed and accuracy of maths facts.

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

Teachers can set minimum levels on 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. As a resource which is also used in secondary schools, the levels from 6 upwards are intended for older students.)

When assigning activities with calculations that do not have spaces for recording any working out, consider getting pupils to record their thinking strategies in their Maths books or on a whiteboard, before answering the question in Mathletics. Pupils can then self-mark their work after each question. If they have made a mistake, they can correct their work using the support feature in the activities. Instant feedback and learning!



For more information about Mathletics, contact our friendly team.

www.mathletics.com/contact

