Year 4 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				Number- Addition and Subtraction			Measurement - Length and Perimeter	Number- Multiplication and Division			Consolidation
Spring	Number- Multiplication and Division			Measurement - Area	Fractions				Decimals			Consolidation
Summer	Decimals		Measurement- Money		Time	Statistics		Geometry- 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.

Year 4 White Rose Maths (WRM) Spring Scheme of Learning, 2018

Content

Examples of alignment to Mathletics

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

Data-Driven Teaching and Learning

Differentiation

Feedback and Reflection

Student Growth

Blended Learning

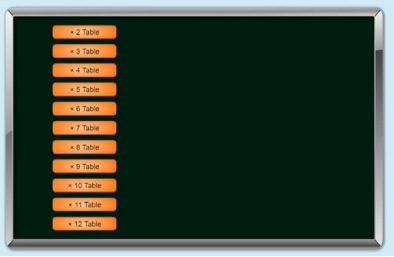
Year 4 White Rose Maths (WRM) Spring Scheme of Learning, 2018

Examples of alignment to Mathletics

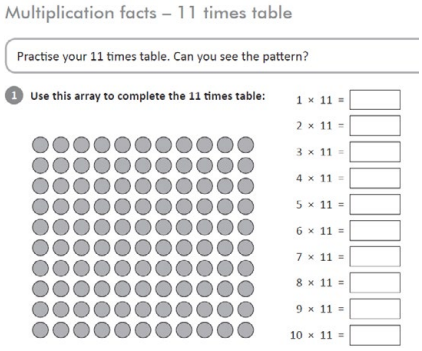
Block 1 (Weeks 1-3) Number: Multiplication and Division

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. ▸ Recognise and use factor pairs and commutativity in mental calculations. ▸ Multiply two digit and three digit numbers by a one digit number using formal written layout. ▸ Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	▸ 11 and 12 Times-table ▸ Multiply 3 Numbers ▸ Factor Pairs ▸ Efficient Multiplication ▸ Written Methods ▸ Multiply 2-digits by 1-digit ▸ Multiply 3-digits by 1-digit ▸ Divide 2-digits by 1-digit (1) ▸ Divide 2-digits by 1-digit (2) ▸ Divide 3-digits by 1-digit ▸ Correspondence Problems

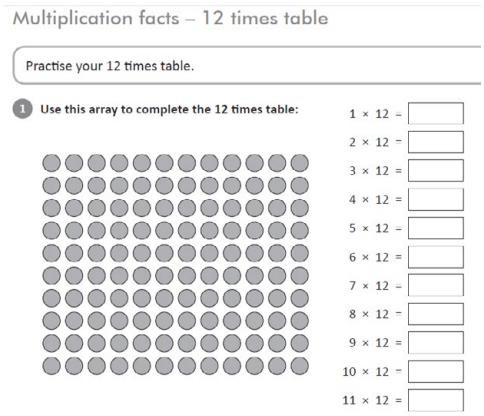
Small step: 11 and 12 Times-table



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



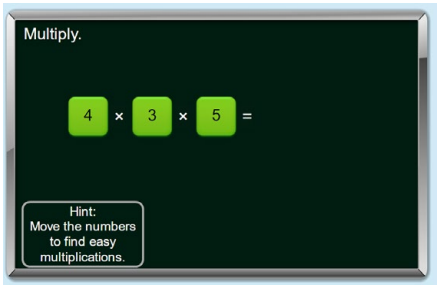
eBook, E series: Multiplication and Division, page 13
Pupils practise the 11 times-table, supported by an array. The page also includes questions out of order and word problems to consolidate understanding.



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.

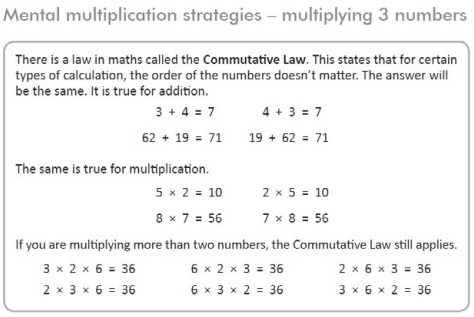
Small step: Multiply 3 Numbers



Topic: Multiply and Divide

Activity: *Multiply 3 Single-Digit Numbers*

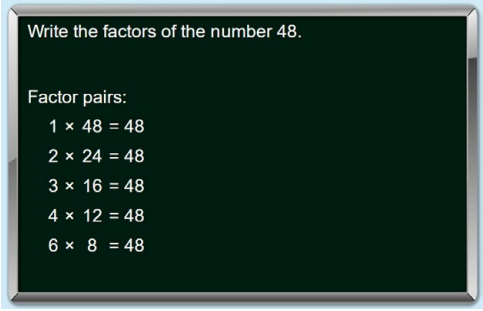
Pupils are encouraged to swap numbers around to make the multiplication problem easier.



eBook, E series: Multiplication and Division, page 20

Pupils work through an explanation of Commutative Law and then practise some examples.

Small step: Factor Pairs

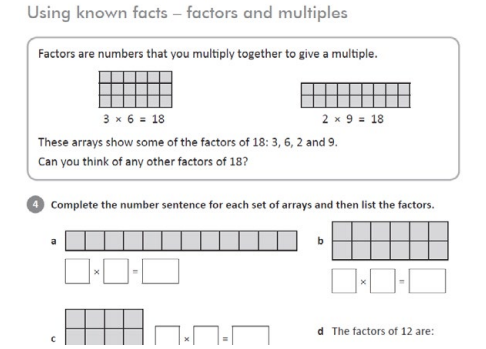


Topic: Multiply and Divide

Activity: *Factors*

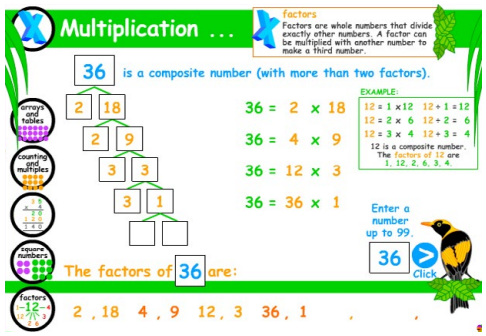
Pupils are required to find factor pairs for a given number and then list the factors in ascending order.

Year 4 White Rose Maths (WRM) Spring Scheme of Learning, 2018



eBook, E series: Multiplication and Division, page 16

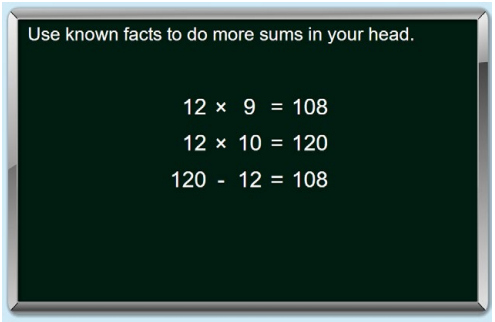
The explanation shows pupils the relationship between factors and multiples. Pupils are then asked to find factor pairs.



Rainforest Maths — Level E — Multiplication

Pupils input any number up to 99 and are shown all the pairs of factors for that number and a systematic way of finding them. The activity works well on an interactive whiteboard, with the class finding all pairs before clicking to check them.

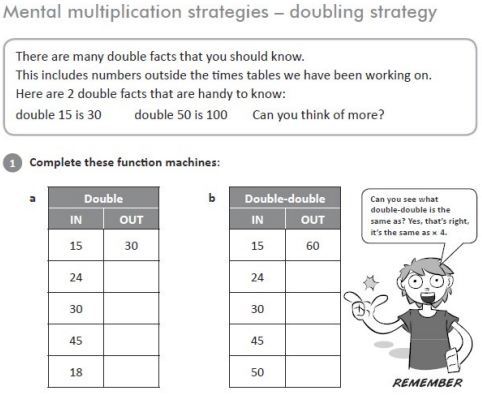
Small step: Efficient Multiplication



Topic: Multiply and Divide

Activity: *Mental Methods Multiplication 1*

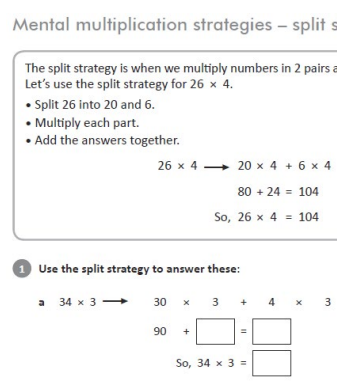
Pupils are encouraged to use an efficient strategy to multiply a 2-digit and 1-digit number. Strategies used are: rounding and compensating, repeated doubling (4 x, 8 x), multiply by 10 and then double to multiply by 20.



eBook, E series: Multiplication and Division, pages 21–22

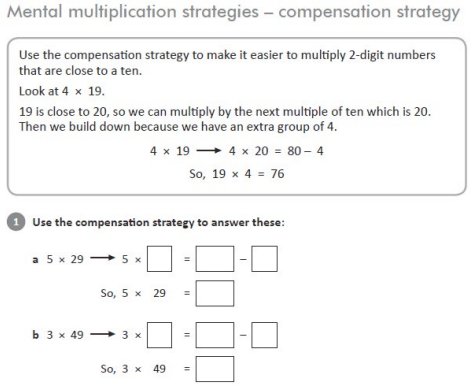
Doubling is shown as a strategy to use when multiplying by 2, and doubling and doubling again is explored as a strategy for multiplying by 4.

Pupils practise a range of activities using this method.



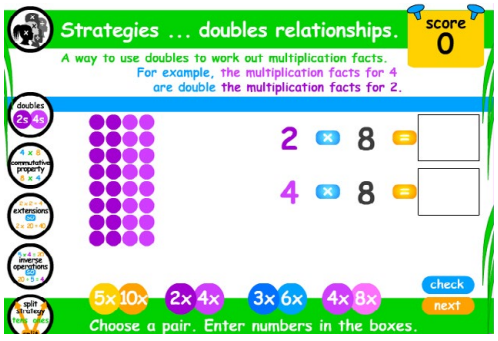
eBook, E series: Multiplication and Division, page 23

The split strategy is explained through an example, and pupils then practise using the method on a series of exercises to multiply a 2-digit number by a 1-digit number.



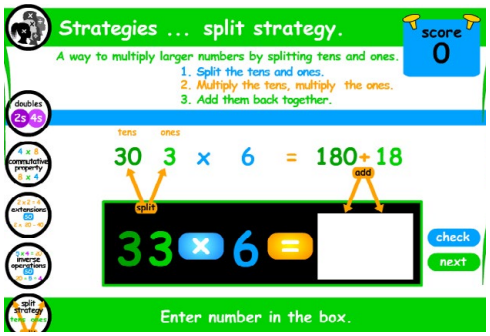
eBook, E series: Multiplication and Division, page 24

Pupils work through an example with an explanation of how to use the compensation strategy to multiply 2-digit numbers by a 1-digit number. A series of exercises then provides opportunities to consolidate their learning.



Rainforest Maths — Level E — Strategies to multiply and divide – doubles

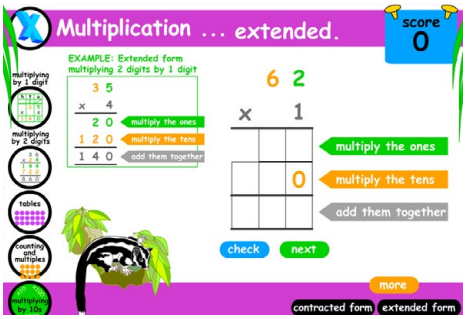
This exercise explains how to use doubling as a strategy to support multiplication. It uses examples of doubling x 2 to find x 4 and then also doubling x 3 to find x 6 and doubling x 4 to find x 8.



Rainforest Maths – Level E – Strategies to multiply and divide … split strategy

This page explains how to split a 2-digit number into tens and ones and then multiply each by the 1-digit number. Pupils then add the multiplication answers to find the total.

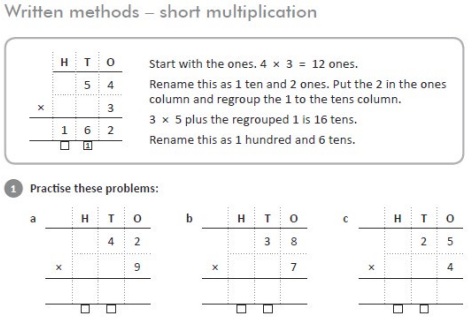
Small step: Written Methods



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

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

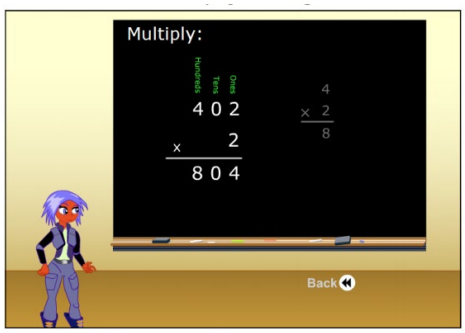
Small step: Multiply 2-digits by 1-digit



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.

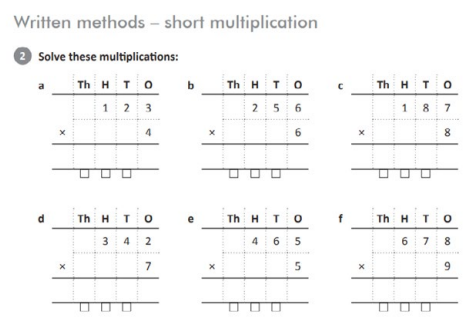
Small step: Multiply 3-digits by 1-digit



Topic: Multiply and Divide

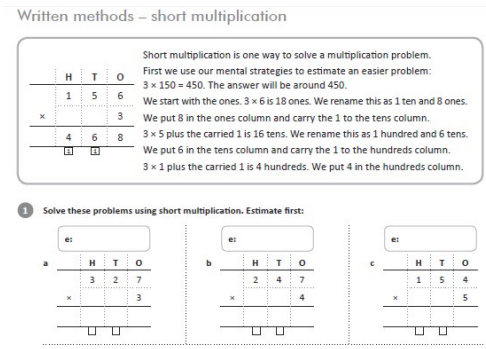
Activity: *Multiply: 1-Digit Number*

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



eBook E series: Multiplication and Division, page 43

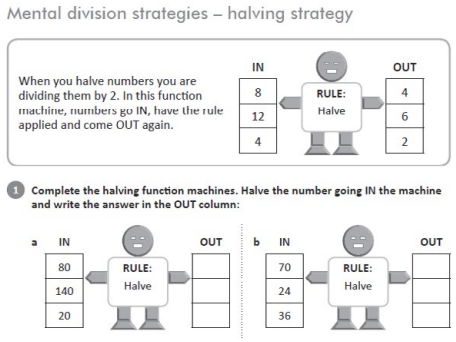
Pupils practise multiplying 3-digit numbers by 1-digit numbers involving exchanges in either 1 or 2 columns.



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

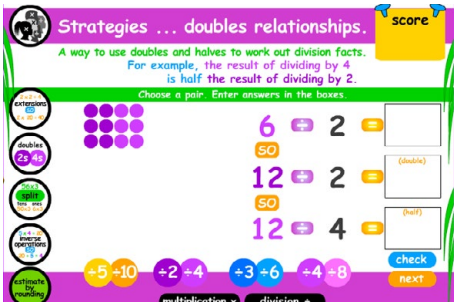
Following an explanation of how to multiply a 3-digit number by a 1-digit number using short multiplication, pupils work through a series of exercises to practise the concept.

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



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

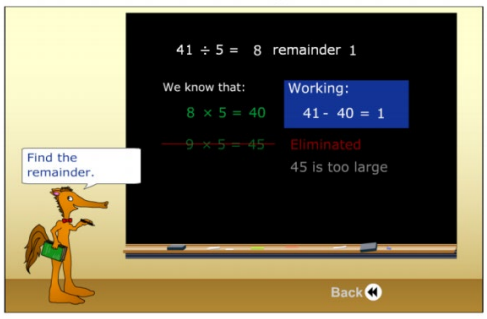
These activities explain the concept of dividing a 2-digit number by 2 as halving, and then extends to division by 4 as halving and halving again. Exercises provide an opportunity to practise the concept.



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.

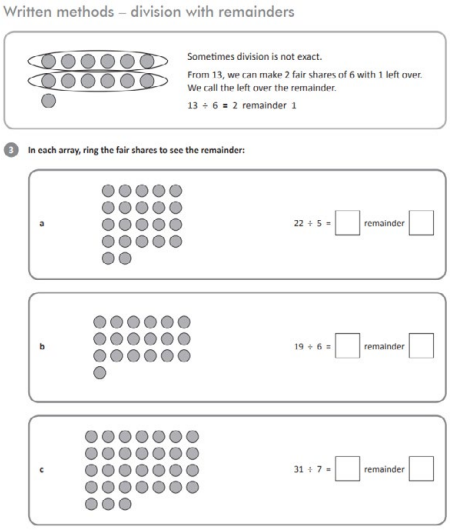
Small step: Divide 2-digits by 1-digit (2)



Topic: Multiply and Divide

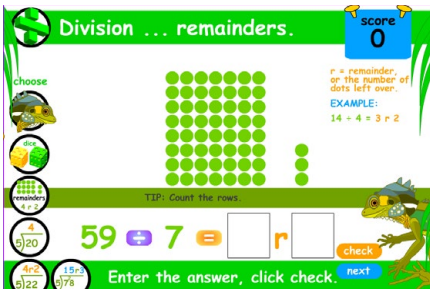
Activity: *Remainders by Tables*

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



eBook, F series: Multiplication and Division, pages 28–31

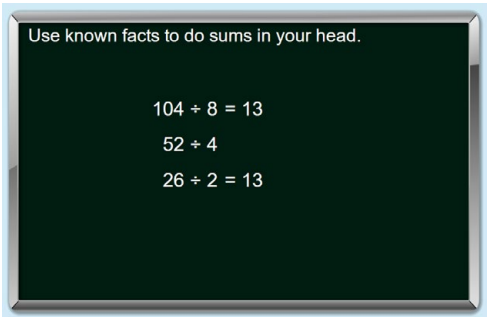
Beginning on page 28 with an introduction to the concept using visual models, these exercises involve division of 2-digit numbers by 1-digit numbers with remainders.



Rainforest Maths — Level E — Division ... remainders

Pupils use the visual array to help them divide a 2-digit number by a 1-digit number where the answer includes a remainder.

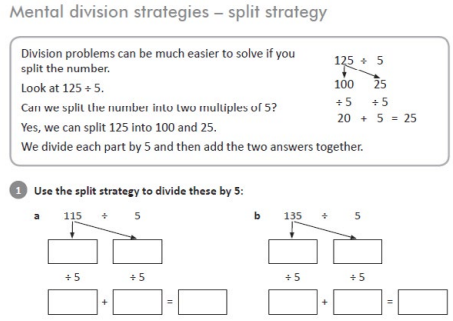
Small step: Divide 3-digits by 1-digit



Topic: Multiply and Divide

Activity: *Mental Methods Division 1*

Pupils practise using efficient mental strategies to divide 2-digit and 3-digit numbers by 1-digit numbers. Strategies include doubling and halving and splitting the dividend into easier multiples of the divisor.



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.

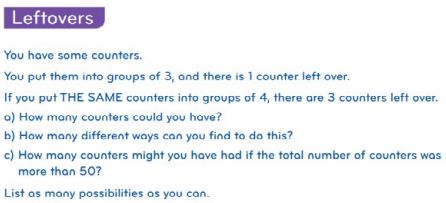
On page 40–41 pupils apply their understanding of using the split strategy to solve word problems involving division.

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



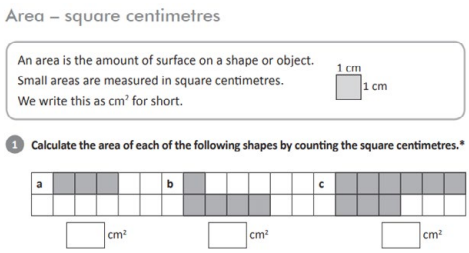
eBook, E series: Leftovers (rich task)

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

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

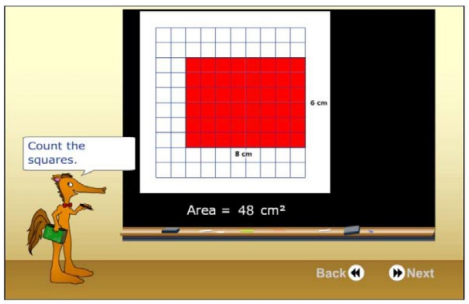
National Curriculum Objectives	WRM Small Steps
▸ Find the area of rectilinear shapes by counting squares.	▸ What is Area? ▸ Counting Squares ▸ Making Shapes ▸ Comparing Area

Small step: What is Area?

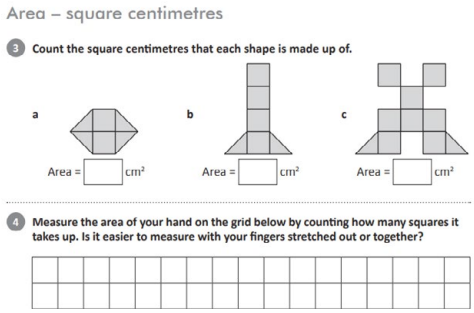


eBook, E series: Length, Perimeter and Area, page 18
This activity explains the concept of finding the area of a shape using square centimetres. Pupils complete a series of exercises to practise the concept.

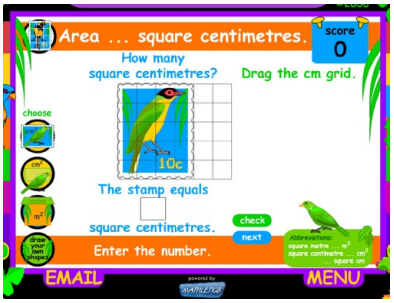
Small step: Counting Squares



Topic: Area
Activity: *Area of Shapes*
Pupils count centimetre squares to find the area of squares and rectangles.



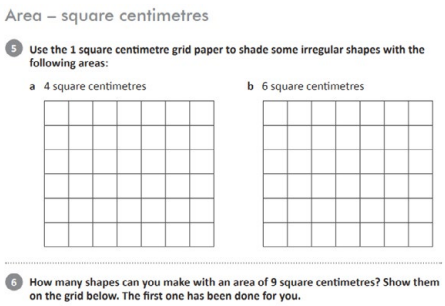
eBook, E series: Length, Perimeter and Area, page 19
Pupils count squares to find the area of a variety of irregular shapes, including shapes where they need to add together fractions of squares.



Rainforest Maths — Level D — Area

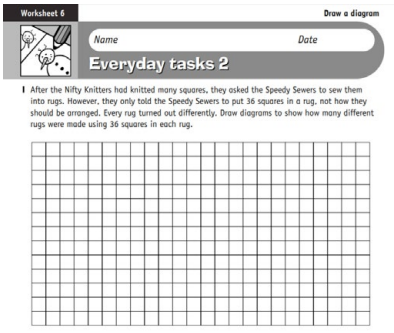
Pupils drag a centimetre grid over the top of rectangular shapes to find the area by counting the square centimetres.

Small step: Making Shapes



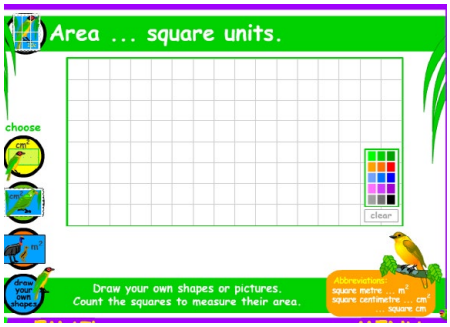
eBook, E series: Length, Perimeter and Area, page 20

Using a square grid, pupils are asked to create irregular shapes with a specified area.



eBook, E series: Problem Solving, page 9

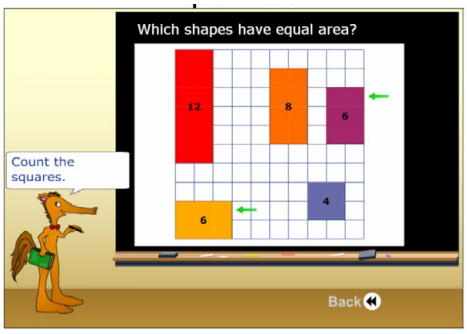
Pupils explore making different rectangular shapes with a given number of squares and find the total number of different arrangements possible.



Rainforest Maths — Level E — Area

Pupils can create their own shapes on the grid, using a range of coloured markers. Pupils can also be given a specified area and then be challenged to create a shape with the given area.

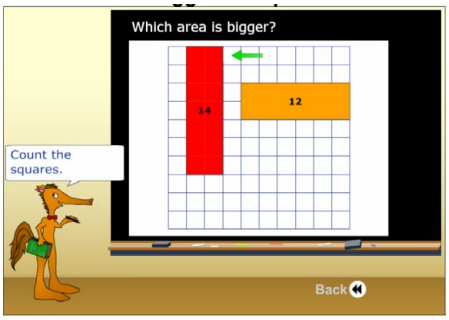
Small step: Comparing Area



Topic: Area

Activity: *Equal Areas*

Pupils count the square centimetres to compare the area of squares and rectangles and find shapes that have an equal area.



Topic: Area

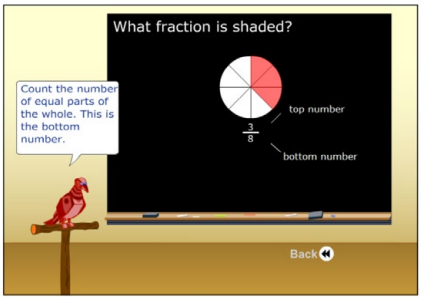
Activity: *Biggest Shape*

Pupils count square centimetres to compare the area of squares and rectangles and find the shape with the bigger area.

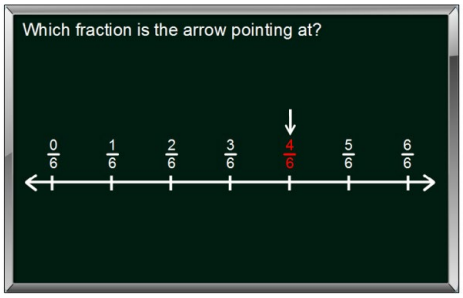
Examples of alignment to Mathletics
Block 3 (Weeks 5–8) Fractions

National Curriculum Objectives	WRM Small Steps
▸ Recognise and show, using diagrams, families of common equivalent fractions. ▸ Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. ▸ 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 and subtract fractions with the same denominator.	▸ What is a Fraction? ▸ Equivalent Fractions (1) ▸ Equivalent Fractions (2) ▸ Fractions Greater than 1 ▸ Count in Fractions ▸ Add 2 or More Fractions ▸ Subtract 2 Fractions ▸ Subtract from Whole Amounts ▸ Fractions of a Quantity ▸ Calculate Quantities

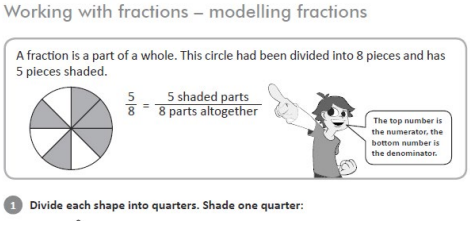
Small step: What is a Fraction?



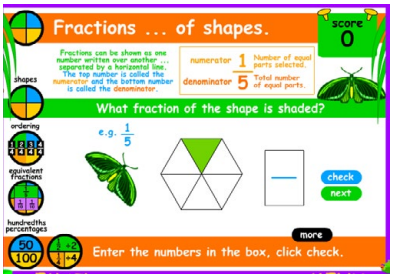
Topic: Fractions
Activity: *Model Fractions*
Pupils record the numerator and denominator for a given fraction (less than 1). The support area provides an explanation of how to correctly record a fraction.



Topic: Fractions
Activity: *Identifying Fractions on a Number Line*
Pupils identify fractions on an unmarked number line by identifying the total number of segments in the number line and then counting along the segments.



eBook, E series: Fractions, pages 1–2
This activity explains what a fraction is and shows pupils the numerator and denominator. Exercises then involve shading fractions and naming them.

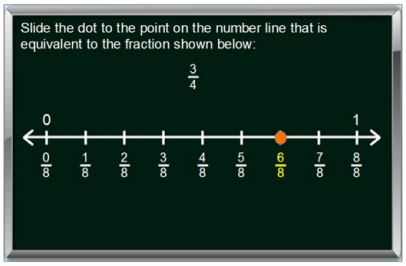


Rainforest Maths — Level D — Fractions

This page introduces pupils to the concept of fractions and explains the terms numerator and denominator. It illustrates fractions as shaded areas in shapes and pupils input the fractions.

The first examples are unit fractions, but by clicking on 'More', examples of non-unit fractions are shown.

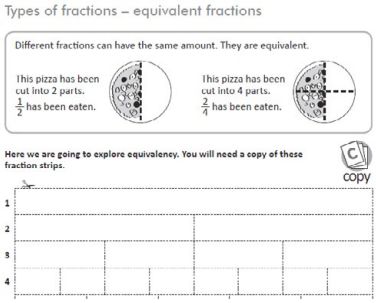
Small step: Equivalent Fractions (1)



Topic: Fractions

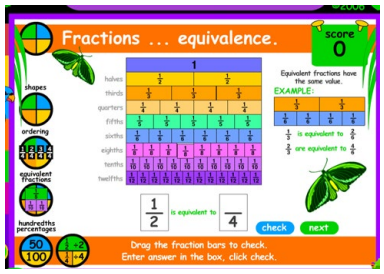
Activity: *Equivalent Fractions on a Number Line 1*

Pupils locate the correct position on a number line for a given fraction. Pupils will need to first identify the equivalent fraction before being able to locate the position.



eBook, E series: Fractions, pages 12–13

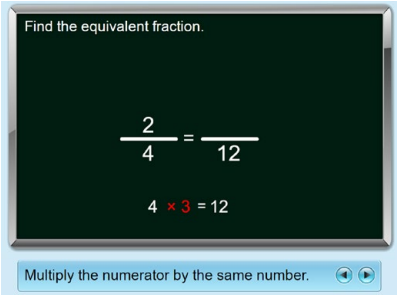
These pages explain the concept of equivalent fractions. Pupils create their own fraction wall and then use it to play 2 different paired games. Game 1 involves pupils removing fractions from a whole, while game 2 involves pupils adding fractions until they have completely covered 2 wholes.



Rainforest Maths — Level E — Fractions

This brightly-coloured fraction wall works well on an interactive whiteboard. The pieces of the fraction wall can be dragged over other fractions to show their equivalence. Pupils find the equivalent fraction then enter the answer.

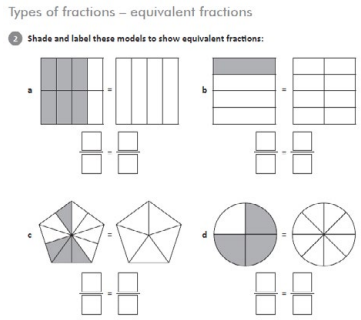
Small step: Equivalent Fractions (2)



Topic: Fractions

Activity: *Equivalent Fractions*

Pupils use multiplication and division facts to find equivalent fractions. The support area reminds pupils that the denominator and the numerator must be multiplied or divided by the same number.

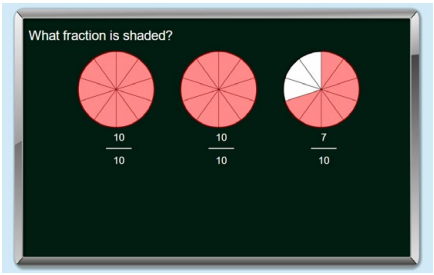


eBook, E series: Fractions, pages 14–16

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.

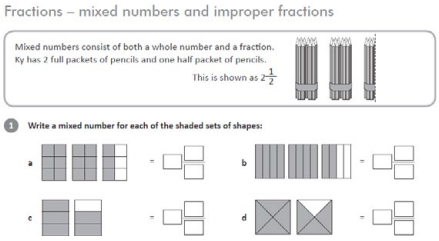
Small step: Fractions Greater than 1



Topic: Fractions

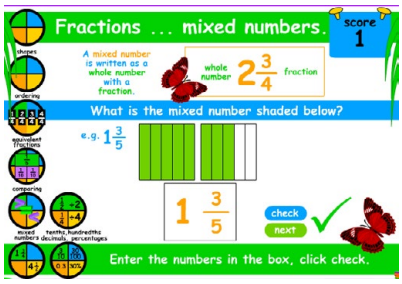
Activity: *What Fraction Is Shaded 1?*

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



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

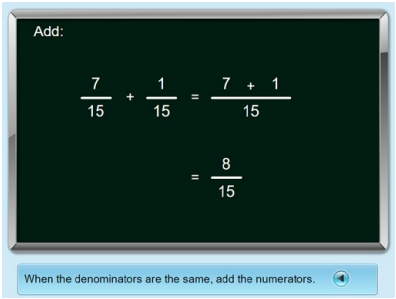
Pupils are introduced to the concept of mixed numbers being a whole number and a fraction. Pupils look at shaded shapes and record the whole number and the fraction. They then draw diagrams to show mixed numbers.



Rainforest Maths — Level E — Fractions

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

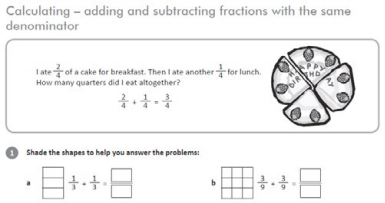
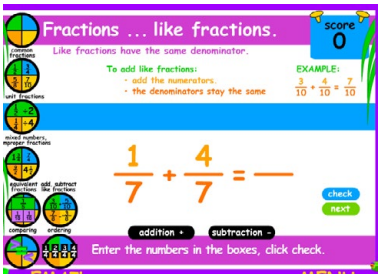
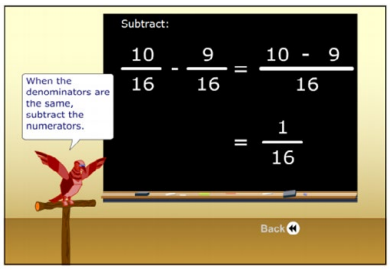
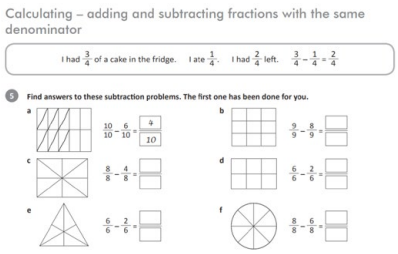
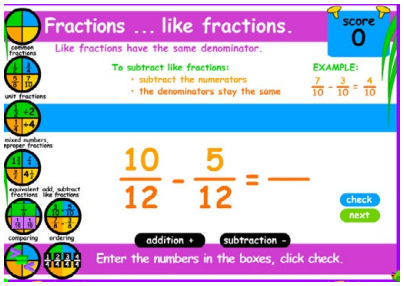
Small step: Add 2 or More Fractions



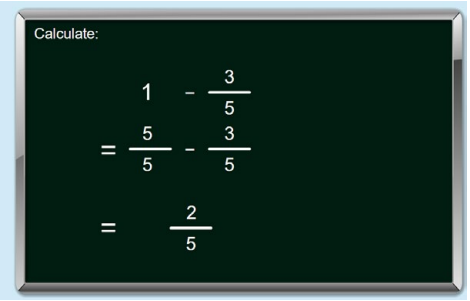
Topic: Fractions

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.

	**eBook, F series: Fractions, Decimals and Percentages, page 32** Pupils are shown how to add fractions when the denominator is the same. Exercises involve solving a range of problems, including word problems.
	**Rainforest Maths — Level F — Fractions** In the exercise pupils can add and subtract like fractions. When pupils select 'addition', the concept of addition of fractions with the same denominator is explained. Pupils complete the calculation and check to see they are correct. If an incorrect answer is entered, pupils can re-enter an answer and check again.
Small step: Subtract 2 Fractions	
	**Topic:** Fractions **Activity:** *Subtract Like Fractions* Pupils subtract 2 fractions where the denominators are the same. The support area reminds pupils that when the denominators are the same, the numerators can be subtracted.
	**eBook, F series: Fractions, Decimals and Percentages, page 33** Pupils are shown how to subtract fractions when the denominator is the same. Models and number lines are provided for support.
	**Rainforest Maths — Level F — Fractions** In the exercise addition and subtraction of like fractions is explained. When pupils select subtraction, the concept of subtracting fractions with the same denominator is explored. Pupils complete the calculation and check to see they are correct. If an incorrect answer is entered, pupils can repeat the question and check the answer again.

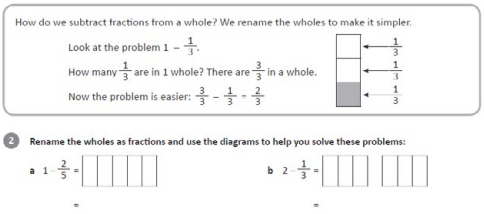
Small step: Subtract from Whole Amounts



Topic: Fractions

Activity: *One Take Fraction*

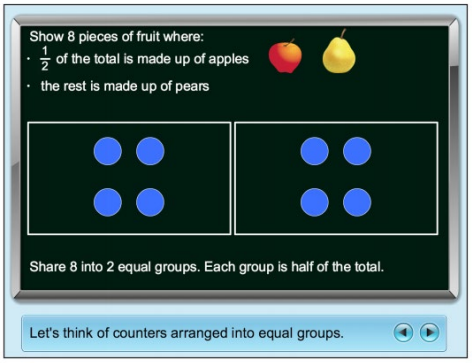
In this activity, pupils subtract a fraction from 1 whole. The support area shows pupils how to rewrite the whole as a fraction before subtracting.



eBook, F series: Fractions, Decimals and Percentages, page 34

Pupils are shown how to convert the whole number to a fraction to help them to subtract a fraction. Pupils then practise the concept of conversion and subtraction to reinforce the concept.

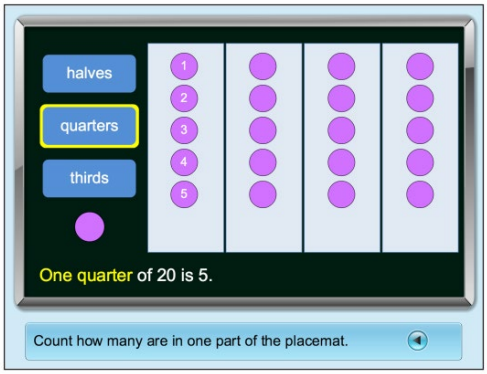
Small step: Fractions of a Quantity



Topic: Fractions

Activity: *Fraction Fruit Sets 1*

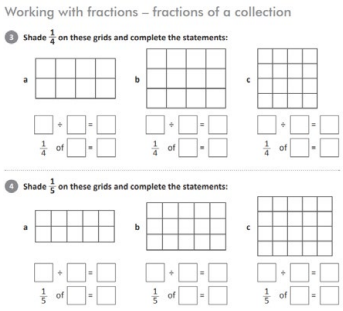
Pupils find halves, quarters and thirds (including non-unit fractions) of quantities of fruit. Answers are shown by representing the correct number of each type of fruit.



Topic: Fractions

Activity: *Fractions of a Collection 1*

In this activity, pupils use an interactive to find the halves, quarters or thirds of amounts (including non-unit fractions) by partitioning a rectangle and placing the correct number of counters in each section.


Working with fractions – fractions of a collection

3 Shade $\frac{1}{4}$ on these grids and complete the statements:

a b c

$\frac{1}{4}$ of = $\frac{1}{4}$ of = $\frac{1}{4}$ of =

4 Shade $\frac{1}{5}$ on these grids and complete the statements:

a b c

$\frac{1}{5}$ of = $\frac{1}{5}$ of = $\frac{1}{5}$ of =

eBook, E series: Fractions, pages 6–9

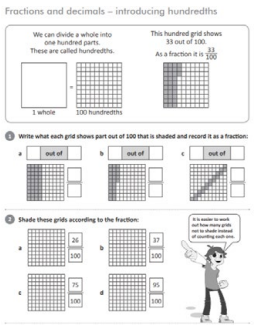
Pupils are shown the relationship between finding fractions of quantities and division. Models are used for support in the exercises that follow. Word problems are also included.

Examples of alignment to Mathletics

Block 4 (Weeks 9–11) Decimals

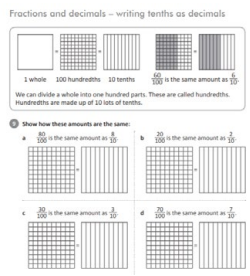
National Curriculum Objectives	WRM Small Steps
▸ Recognise and write decimal equivalents of any number of tenths or hundredths. ▸ Find the effect of dividing a one or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths. ▸ **Solve simple measure** 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



eBook, E series: Fractions, page 17

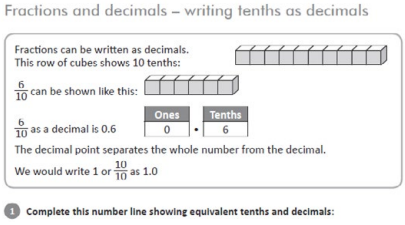
The concept of hundredths is introduced as a fraction, using hundredths shaded on a 100 square. Pupils identify, record and then order hundredths.



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

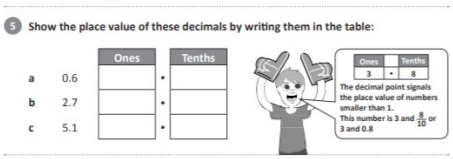


eBook, E series: Fractions, page 18

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.

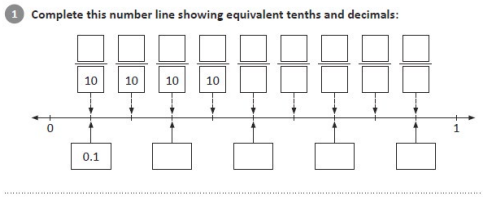
Small step: Tenths on a Place Value Grid



eBook, E series: Fractions, page 19

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

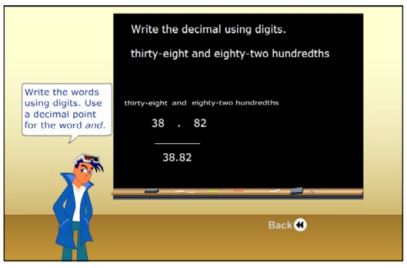
Small step: Tenths on a Number Line



eBook, E series: Fractions, page 18

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

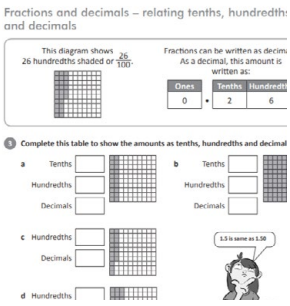
Small step: Hundredths as Decimals



Topic: Fractions

Activity: *Decimals from Words to Digits 1*

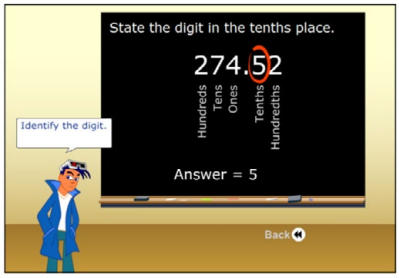
Pupils read numbers including tenths and hundredths and record the numbers using digits.



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.

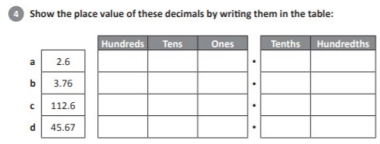
Small step: Hundredths on a Place Value Grid



Topic: Fractions

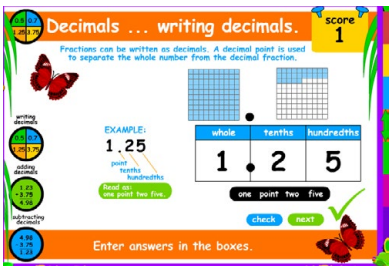
Activity: *Decimal Place Value*

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.



eBook, E series: Fractions, page 22

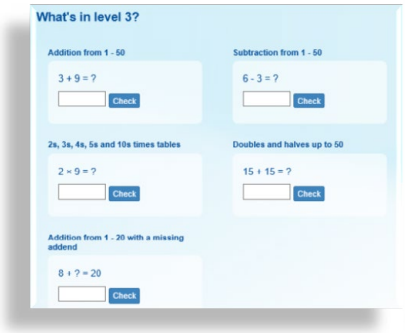
Pupils transpose numbers up to 2 decimal places onto a place value grid.

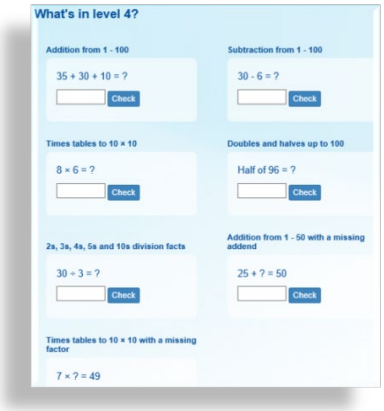


Rainforest Maths — Level D— Decimals

Pupils record the decimal number they see in the visual on a place value grid, showing whole numbers, tenths and hundredths.

Live Mathletics





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!

Mathletics

powered by

3P Learning

For more information about Mathletics, contact our friendly team.

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