Mathletics

White Rose Maths (WRM) Autumn Scheme of Learning, 2017

Alignment with Mathletics

Year 5 – 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		Statistics		Number – Multiplication and Division		Perimeter and Area		Consolidation
Spring	Number – Multiplication and Division		Number – Fractions							Number – Decimals & Percentages		Consolidation
Summer	Number – Decimals			Geometry- Properties of Shapes			Geometry- Position and Direction	Measurement- Converting Units		Measures Volume		Consolidation

White Rose Maths

Year 5

Mathletics

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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 give pupils further opportunities to practise their learning online.

Course selection:
A specific Mathletics course has been created in alignment with the WRMH scheme of learning. You may wish to set this course for your class/groups.

England Yr 05 WRMH Autumn Aligned

| Data-Driven Teaching and Learning | Differentiation | Feedback and Reflection | Student Growth | Blended Learning |

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Examples of alignment to Mathletics
Weeks 1-3 Number: Place Value

National Curriculum Objectives	WRMH Small Steps
▸ Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. ▸ Count forwards or backwards in steps of powers of 10 for any given number up to 1000000. ▸ Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero. ▸ Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000. ▸ Solve number problems and practical problems that involve all of the above. ▸ Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	▸ Number to 10,000 ▸ Roman numerals to 1,000 ▸ Round to the nearest 10, 100 and 1,000 ▸ Number to 100,000 ▸ Compare and order numbers to 100,000 ▸ Round numbers within 100,000 ▸ Numbers to a million ▸ Counting in 10s, 100s, 1,000s, 10,000s and 100,000s ▸ Compare and order numbers to a million ▸ Round numbers to a million ▸ Negative numbers

Small step: Roman numerals to 1,000

Convert to Roman Numerals. 68 → **LXVIII** ✓ Hindu-Arabic numeral · Roman numeral Select: I V X L C D M	**Topic:** Number and Place Value **Activity:** *Converting to Roman Numerals to 1000* Support explains the value of symbols for Roman numerals and how the system works. Activity engages pupils in converting to Roman numerals. Adaptive activity begins with 2-digit numbers and progresses to 3-digit numbers. **Activity:** *Converting from Roman Numerals to 1000* Pupils state the number that relates to the Roman numeral shown.
Looking at whole numbers – Roman numerals	**eBook, F series: Number and place Value, page 9** Explains and models examples of Roman numerals beyond 1,000. Exercises to convert to and from Roman numerals.
Roman numerals.	**Rainforest Maths— Level F — Numbers: Roman numerals** Explains and models Roman numerals up to 9,999. Click on the Roman numerals quiz for more practice.

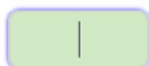# Year 5 White Rose Maths (WRM)
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Small steps:
- Round to the nearest 10, 100 and 1,000
- Round numbers within 100,000
- Round numbers to a million

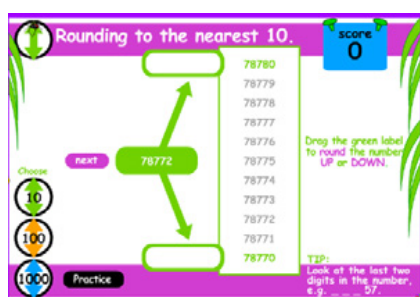|	
50,834 — Number / Nearest thousand	**Topic:** Number and Place Value **Activity:** *Rounding Numbers* Pupils round numbers to the nearest 10, 100 and 1,000.
Round and estimate – estimate We use estimating when we want an approximate answer to a calculation. Rounding helps us do this. We round numbers so we can work with them more easily in our heads. Look at 333 + 521. Rounded to the nearest 10, they are 330 and 520. 330 + 520 = 850 Therefore 333 + 521 is approximately 850.	**eBook, F series: Number and Place Value, page 20+** Explains rounding and the concept of estimating. Exercises to practise the concept, followed by some trickier problems to explore.
Rounding to the nearest 10.	**Rainforest Maths- Level F- Number – Rounding to nearest 10, 100 and 1000** Activity to practise rounding to nearest 10, 100 or 1,000.

Small steps:
- Number to 10,000
- Number to 100,000
- Numbers to a million
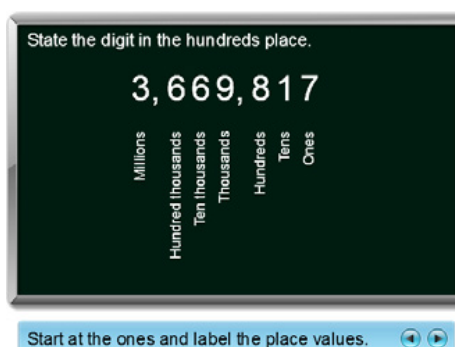
State the digit in the hundreds place. 3,669,817 Millions / Hundred thousands / Ten thousands / Thousands / Hundreds / Tens / Ones Start at the ones and label the place values.	**Topic:** Number and Place Value **Activity:** *Place Value to Millions* Support shows pupils the value of each digit. The exercise is adaptive and pupils identify the value of digits up to a million.
Express in expanded notation 65,194 60000 + 5000 + 100 + 90 + 4 ✓	**Topic:** Number and Place Value **Activity:** *Expanded Notation* Pupils partition 5-digit numbers into 10,000s, 1000s, 100s, 10s and 1s.

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eBook, F series: Number and Place Value, page 2
Explanation and exercises to secure understanding of place value for numbers to 999,999.

Small steps:
- Compare and order numbers to 100,000
- Compare and order numbers to a million

eBook, F series: Number and Place Value, page 4
Exercises to practise ordering numbers to 999,999.

eBook, F series: Number and Place Value, page 6
Exercises to secure understanding of comparing, creating and ordering numbers to 999,999.

Rainforest Maths — Level F: Number to 999 999 — Order
Activities to order three 6-digit numbers.

Small step: Negative numbers

Topic: Number and Place Value
Activity: *Integers on a Number Line*
Pupils identify positive and negative numbers on a number line.

eBook, F series: Number and Place Value, page 8
Explains and shows negative numbers on a number line. Includes exercises to reinforce the concept.

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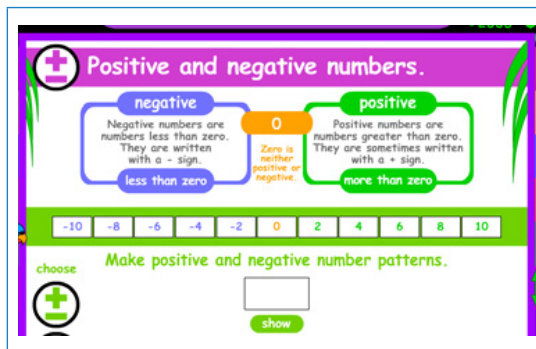
Rainforest Maths — Level F — Number: Positive and Negative Numbers

Enables pupils to see counting patterns along a number line, going back past zero.

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Examples of alignment to Mathletics
Weeks 4-5 Number: Addition and Subtraction

National Curriculum Objectives	WRMH Small Steps
▸ Add and subtract numbers mentally with increasingly large numbers. ▸ Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ▸ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	▸ Add whole numbers with more than 4-digits (column method) ▸ Subtract whole numbers with more than 4-digits (column method) ▸ Round to estimate and approximate ▸ Inverse operations (addition and subtraction) ▸ Multi-step addition and subtraction problems

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.

Small step: Add whole numbers with more than 4-digits (column method)

$$7,955 + 469 = 8,424 \checkmark$$

Topic: Addition and Subtraction
Activity: *Adding Colossal Columns (UK)*
This adaptive activity works through adding 3 digits and moves on to adding 4 digits, with examples that involve exchanging.
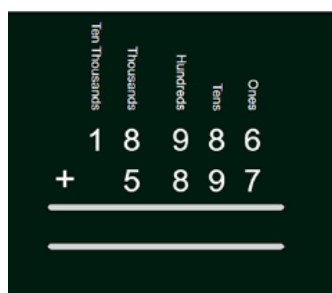
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Rainforest Maths — Level F — Addition

Exercises for pupils to practise addition with numbers up to 5 digits, both with and without regrouping.
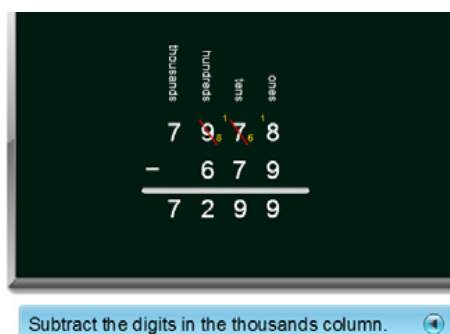

Topic: Addition and Subtraction

Activity: *Add Multi-Digit Numbers 2 (UK)*

Pupils perform addition of two numbers with minimum 4 digits. Exchanges always required.
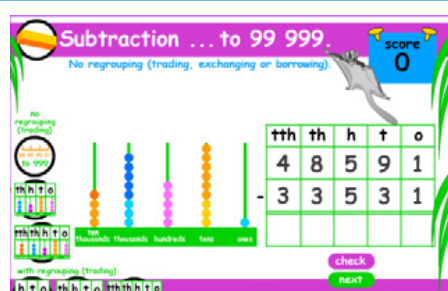
Small step: Subtract whole numbers with more than 4 digits (column method)

Topic: Addition and Subtraction

Activity: *Subtracting Colossal Columns (UK)*

This adaptive activity works through subtraction requiring exchange with two 3-digit numbers before moving on to 4-digit numbers.

Rainforest Maths — Level F: Subtraction

Exercises for pupils to practise subtraction with numbers up to 99,999 without exchanges and then with exchanges.

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Small step: Round to estimate and approximate

782 + 952 ≈

1,400   1,800

1,600   1,300

Hint:
Round each number
to the nearest
hundred.

Topic: Addition and Subtraction
Activity: *Estimate Sums*
Pupils use rounding to help them estimate the answer to additions with larger numbers.

Further Activities:
Estimate Differences
Estimation: Add and Subtract

Rounding to the nearest 10.   score 0

Rainforest Maths — Level F — Rounding
Activities for pupils to practise rounding to the nearest 10, 100 and 1,000. Layout reinforces concept of rounding.

Small step: Multi-step addition and subtraction problems

Applying strategies – choosing when to add or subtract

eBook, G series: Addition and Subtraction, page 15
Explores the vocabulary of word problems that help pupils to decide whether a problem requires addition or subtraction.
Problem solving exercises include putting addition and subtraction into real-life scenarios.

Written methods – word problems

eBook, F series: Addition and Subtraction, page 25
Explains and gives examples of two-step problems.
Incudes exercises for pupils to practise two-step addition and subtraction problems.

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Examples of alignment to Mathletics
Weeks 6-7 Statistics

National Curriculum Objectives	WRMH Small Steps
▶ Solve comparison, sum and difference problems using information presented in a line graph. ▶ Complete, read and interpret information in tables including timetables.	▶ Read and interpret line graphs ▶ Draw line graphs ▶ Use line graphs to solve problems ▶ Read and interpret tables ▶ Two way tables ▶ Timetables

Small steps:
- Read and interpret line graphs
- Draw line graphs
- Use line graphs to solve problems

What was the bank balance on Monday?
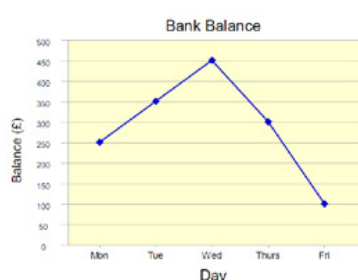
£100   £450
£350   £250

Topic: Statistics

Activity: *Line Graphs: Explanation*

Read and interpret information in a line graph. Some of the questions in this activity do include finding the range but it is well scaffolded through the support.
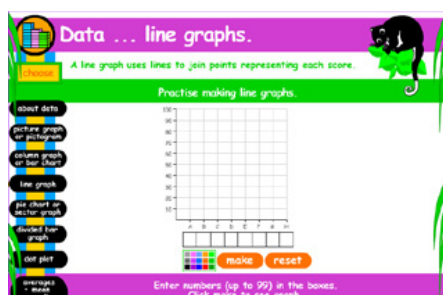
Rainforest Maths — Level F — Data

Explores pictograms, bar graphs, pie charts and line graphs.

Pupils can input data to construct a line graph.
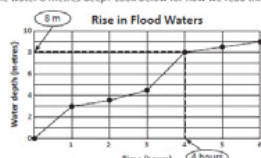
eBook, F series: Statistics, page 9

Explains how to read and also construct line graphs.

Includes exercises to practise finding information from line graphs and constructing graphs.

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Small step: Read and interpret tables

Collecting and analysing data – frequency tables

eBook, F series: Statistics, page 15

Explains how to read data from a table and gives examples of how tables are used from real-life scenarios.

Includes exercises to practise finding information and putting information in a table.

Topic: Statistics

Activity: *Interpreting Data Tables*

This activity includes two-step problems requiring careful reading and interpreting of the table.

Small step: Timetables

Topic: Statistics

Activity: *Using Timetables*

This adaptive activity begins by asking pupils to locate information on the timetable. It progresses to asking pupils to work out the time that has elapsed between two times on the timetable.

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Examples of alignment to Mathletics
Weeks 8-9 Number: Multiplication and Division

National Curriculum Objectives	WRMH Small Steps
▸ Multiply and divide numbers mentally drawing upon known facts. ▸ Multiply and divide whole numbers by 10, 100 and 1000. ▸ Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. ▸ Recognise and use square numbers and cube numbers and the notation for squared (^{2}) and cubed (^{3}). ▸ Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. ▸ Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. ▸ Establish whether a number up to 100 is prime and recall prime numbers up to 19.	▸ Multiples ▸ Factors ▸ Common factors ▸ Prime numbers ▸ Square numbers ▸ Cube numbers ▸ Inverse operations (Multiplication and Division) ▸ Multiply by 10, 100 and 1,000 ▸ Divide by 10, 100 and 1,000 ▸ Multiply and divide by multiples of 10, 100 and 1,000

Small step: Multiples
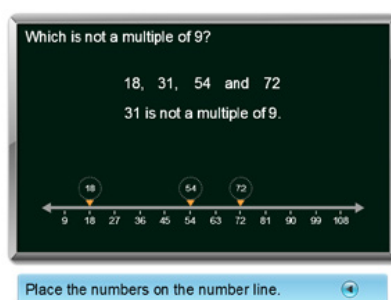
Topic: Multiplication and Division

Activity: *Multiples*

The support area shows pupils how they can place the multiples of a number on a number line and then use this to check against the numbers in the question.

Small step: Factors
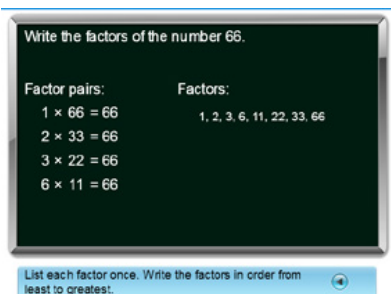
Topic: Multiplication and Division

Activity: *Factors*

The support area models how to list all the factors of a number and then organise the factors into an ordered list.

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eBook, F series: Multiplication and Division, page 1

Explains concept of multiples and factors and includes exercises to practise finding multiples and factors.

Small step: Prime numbers

eBook, F series: Multiplication and Division, page 3

Explains prime and composite numbers and provides exercises to secure understanding.

Topic: Multiplication and Division

Activity: *Prime or Composite?*

Pupils are given a number and asked to decide if it is a prime or composite number.

Includes a video that explains the support area further.

Small step: Square numbers

eBook, F series: Multiplication and Division, page 5

Explains concept of square numbers with activities designed to practise learning.

Topic: Multiplication and Division

Activity: *Square Roots*

Although this activity is focused on finding the square roots, the support uses the square numbers to show the pupils the square root. Also included is a video (see below).

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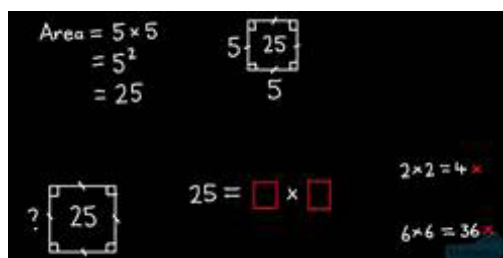
Topic: Multiplication and Division
Activity: *Square Roots*
This video explains the relationship between area, square numbers and square roots.
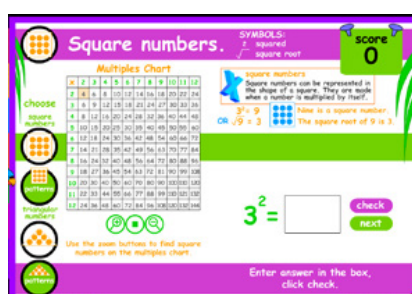
Rainforest Maths — Level F: Numbers — square/triangular
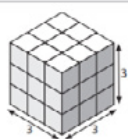Find square numbers using a multiplication chart as support.

Small step: Cube numbers

eBook, F series: Multiplication and Division, page 6
Models and explains cube numbers with exercises designed to practise learning.

Small step: Multiply by 10, 100 and 1,000

Topic: Multiplication and Division
Activity: *Multiplying by 10, 100 and 1000*
The support area clearly explains and models multiplying whole numbers by 10, 100 and 1,000. The adaptive activity begins with multiplying by 10 and then moves on to multiplying 3-digit numbers by 100 and 1,000.

eBook, F series: Multiplication and Division, page 9
Explains multiplication by 10, 100 and 1,000. Reinforces understanding of place value. Exercises to secure knowledge.
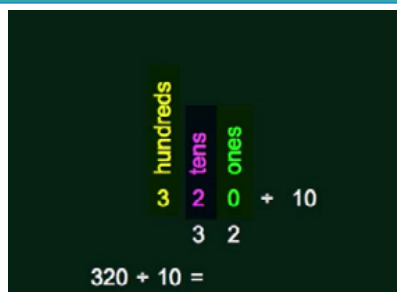
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Small step: Divide by 10, 100 and 1,000

Topic: Multiplication and Division
Activity: *Dividing by 10,100 and 1,000*
The video gives a clear explanation and models what happens when a number is divided by 10.
The animated support also models division by 100 and 1,000.
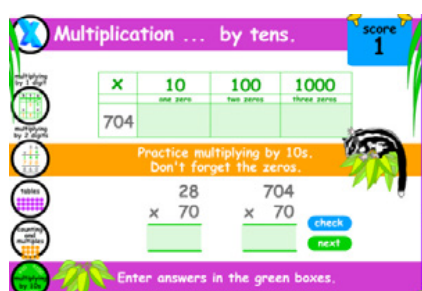

eBook, F series: Multiplication and Division, page 17
Explains dividing by 10s, 100s and 1,000s.
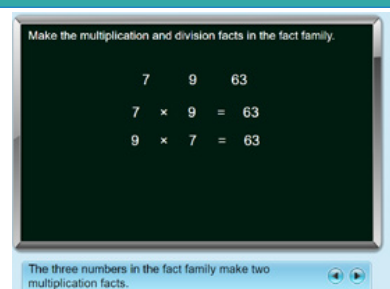Activities to practise.

Small step: Multiply and divide by multiples of 10, 100 and 1,000

Rainforest Maths — Level F — Multiplication by 10s
Exercises to practise multiplying by 10, 100 and 1,000 and also by multiples of 10.

Small step: Inverse operations (Multiplication and Division)

Topic: Multiplication and Division
Activity: *Fact Families: Multiply and Divide*
Practise multiplication and division facts through their inverse relationship.

Rainforest Maths — Level F: Multiplication strategies — inverse operations
Use multiplication facts to find the two related division facts.

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Examples of alignment to Mathletics
Weeks 10-11 Perimeter and Area

National Curriculum Objectives	WRMH Small Steps
▶ Measure and calculate the perimeter of composite rectilinear shapes in cm and m. ▶ Calculate and compare the area of rectangles (including squares), and including using standard units, cm², m² estimate the area of irregular shapes.	▶ Measure perimeter ▶ Calculate perimeter ▶ Find unknown lengths ▶ Area of rectangles ▶ Area of compound shapes ▶ Estimate and approximate area

Small steps:
- **Measure perimeter**
- **Calculate perimeter**
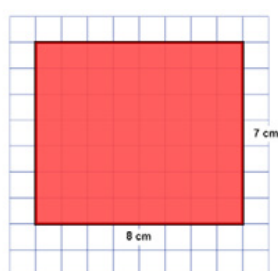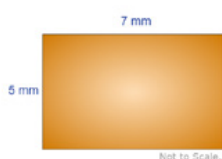
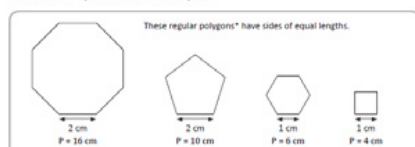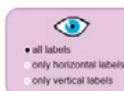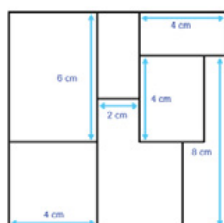|	
7 cm 8 cm Perimeter = 30 cm ✓	**Topic:** Length, Perimeter and Area **Activity:** *Perimeter of Shapes* Rectangles and squares are shown on a grid. Pupils calculate the perimeter in metric units.
Calculate the perimeter. 7 mm 5 mm Not to Scale. Perimeter = ___ mm	**Topic:** Length, Perimeter and Area **Activity:** *Calculate Perimeter of Squares and Rectangles* No grid used in this activity. Calculate the perimeter in metric units.
Perimeter – perimeter of shapes These regular polygons* have sides of equal lengths. 2 cm P = 16 cm 2 cm P = 10 cm 1 cm P = 6 cm 1 cm P = 4 cm Find the perimeter of these regular polygons*: *Not drawn to scale. 5 cm 3 cm 4 cm	**eBook, F series: Length, Perimeter and Area, page 16+** Explains the concept of measuring perimeter. **Includes exercises to measure perimeter of squares and rectangles, then other regular shapes, moving on to irregular shapes.**

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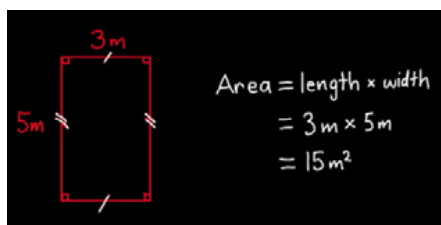Alignment with Mathletics

Mathletics

Small step: Find unknown lengths

Topic: Length, Perimeter and Area

Activity: *Perimeter Detectives 1*

Students are shown only some of the lengths for a rectangle or square and must calculate the length of each side to work out the perimeter.

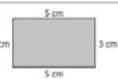### Small step: Area of rectangles

Topic: Length, Perimeter and Area

Activity: *Area: Squares and Rectangles*

The video accompanying this activity explains and models how to calculate perimeter and area of squares and rectangles. It also explains how to find the area of a triangle.

Activity: The activity practises the learning covered in the video which calculates the area of squares and rectangles.
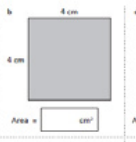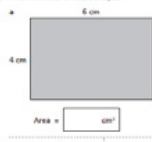
eBook, F series: Length, Perimeter and Area, page 25

Explains concept of measuring area of rectangles.

Exercises to practise.

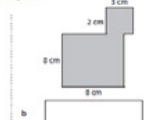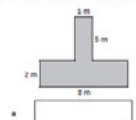### Small step: Area of compound shapes

eBook, F series: Length, Perimeter and Area, page 26

Explores measuring area of compound shapes and provides more challenging exercises to explore the concept of area.
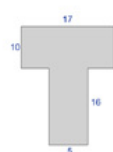
Topic: Length, Perimeter and Area

Activity: *Area: Compound Figures*

Pupils are encouraged to calculate the area of the compound figures by splitting the overall shape into smaller, familiar shapes (rectangles and squares).

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Alignment with Mathletics

Live Mathletics

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

To support progress in Year 5, pupils should use Level 4 and possibly Level 5 as a challenge.

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

For more information about Mathletics,
contact our friendly team.

www.mathletics.com/contact

A 3P Learning Product