

# Mathletics

## White Rose Maths (WRM) Summer 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.



# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

Mathletics

## Contents

### Examples of alignment to Mathletics

Block 1 (Weeks 1–2) Number: Decimals .....	01
Block 2 (Weeks 3–4) Measurement: Money .....	03
Block 3 (Week 5) Measurement: Time .....	05
Block 4 (Weeks 6–7) Statistics .....	08
Block 5 (Weeks 8–10) Geometry: Properties of Shape .....	11
Block 6 (Week 11) Geometry: Position & Direction .....	15

### Purpose:

The aim of this document is to support Mathletics teachers, who use the WRM 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 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 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 practice their learning online.

### Course selection:

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

### England Yr 04 WRM Aligned



Data-Driven  
Teaching and  
Learning



Differentiation



Feedback and  
Reflection



Student Growth



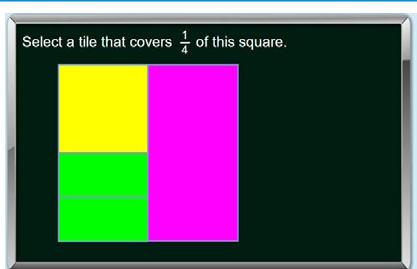
Blended  
Learning

### Examples of alignment to Mathletics

### Block 1 (Weeks 1–3) Number: Fractions

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>Recognise and show, using diagrams, equivalent fractions with small denominators.</li> <li>Compare and order unit fractions, and fractions with the same denominators.</li> <li>Add and subtract fractions with the same denominator within one whole [for example <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math>.]</li> <li>Solve problems that involve all of the above.</li> </ul>	<ul style="list-style-type: none"> <li>Equivalent Fractions (1)</li> <li>Equivalent Fractions (2)</li> <li>Equivalent Fractions (3)</li> <li>Compare Fractions</li> <li>Order Fractions</li> <li>Add Fractions</li> <li>Subtract Fractions</li> </ul>

### Small step: Equivalent Fractions (1)



Topic: **Fractions**

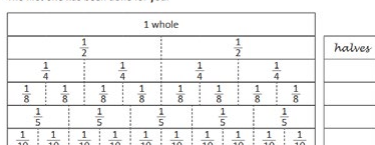
Activity: *Unevenly partitioned shapes 1*

Reasoning about unevenly partitioned shapes encourages pupils to think more deeply about the relationship between the part and the whole as well as with other parts.

Types of fractions – equivalent fractions

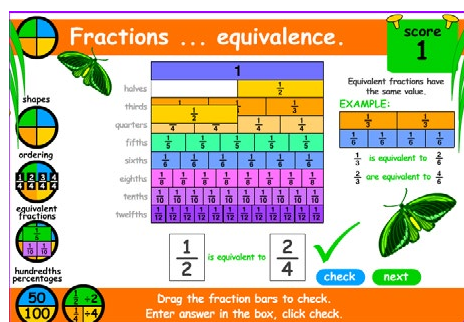
This fraction wall shows fractions that are equivalent. Equivalent fractions are fractions that are the same amount. How many equivalent fractions can you find?

1 Label each row of the fraction wall and colour each strip a different colour. The first one has been done for you.



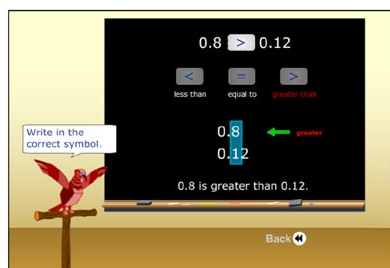
eBook, D series: **Fractions, pages 15–16**

Using a fraction wall as a visual, pupils identify pairs of equivalent fractions. In exercise 3, pupils shade equivalent fractions and label them.



**Rainforest Maths – Level D – Fractions – equivalent fractions**

The pieces on this fraction wall can be moved to clearly show equivalent fractions. Pupils enter the equivalent fraction and press 'check' for instant feedback. This visual is ideal for use on an interactive whiteboard and for class discussion of equivalent fractions.



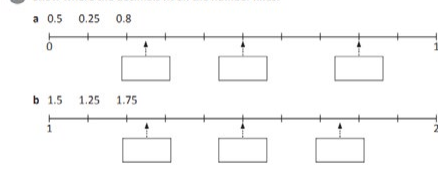
Topic: **Decimals**

Activity: **Decimal Order 1**

Pupils use their knowledge of place value to compare 2 decimals and select the correct symbol to represent the relationship between the decimals. The easier level compares only tenths, the medium level compares only hundredths and the harder level compares tenths with hundredths.

### Small step: Order Decimals

7 Show where the decimals fit on the number lines:



eBook, E series: **Fractions, page 23**

In exercise 7, pupils are asked to order the listed decimals and place them in the appropriate spaces on a number line.

Fractions and decimals – comparing decimals

To compare and order decimals, the same rules apply as for whole numbers. First, look at the digit on the left of each number. Those with the lowest digits are the smallest numbers, so, in the decimals below, 0.9 is the smallest number.

1.8    1.4    1.5    0.9    1.1

If the left-most digits are the same, then you look at the next digit, and order the numbers according to those. So, the numbers above should be ordered from smallest to largest as:

0.9    1.1    1.4    1.5    1.8

1 Order these decimals from smallest to largest:

a    5.7    7.5    5.5    7.3    3.7

eBook, E series: **Fractions, page 26**

This page explains the strategy pupils need to follow when ordering decimals. Working from the left, pupils compare the digits in the numbers they are ordering. Pupils apply their learning to a range of exercises where they are asked to compare and then order the decimals.

### Small step: Round Decimals

Fractions and decimals – rounding

Just as we can round whole numbers up to the nearest 10 or 100, so we can round decimals up to the nearest tenth or whole number. The rules are the same: if the digit to be rounded is between 1 and 4 you round down; if it is between 5 and 9 you round up.

26 rounded to the nearest ten is 30.

2.6 rounded to the nearest one is 3.

1 Round the following numbers to the nearest one:

a 3.2 =     b 9.7 =     c 17.5 =

d 35.4 =     e 199.5 =     f 687.7 =

eBook, E series: **Fractions, page 27**

The strategy for rounding decimals is explained to pupils. The exercises that follow give them the opportunity to apply their learning by rounding decimals and identifying which fraction is rounded to a given whole number.

### Small step: Halves and Quarters

Fractions and decimals – common equivalents

We use some fraction and decimal equivalents often. The most common is half. Two halves make a whole:

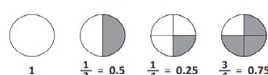
$$\frac{1}{2} + \frac{1}{2} = 1 \quad \frac{1}{2} = 0.5 \quad 0.5 + 0.5 = 1$$

Half of a half is a quarter, so two quarters make a half:

$$\frac{1}{4} + \frac{1}{4} = \frac{1}{2} \quad \frac{1}{4} = 0.25 \quad 0.25 + 0.25 = 0.5$$

So,  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$      $0.25 + 0.25 + 0.25 = 0.75$

$$\frac{3}{4} = 0.75$$



eBook, E series: **Fractions, page 28**

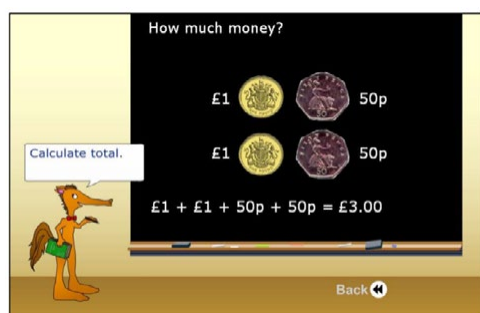
Pupils identify the decimals that are equivalent to halves and quarters. They extend this understanding to show the decimal equivalent of  $\frac{1}{4}$  and  $\frac{3}{4}$ . Pupils then identify a shaded fraction of a shape and record both the common fraction and the equivalent decimal.

#### Examples of alignment to Mathletics

#### Block 2 (Weeks 3–4) Measurement: Money

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>▶ Estimate, compare and calculate different measures, including money in pounds and pence.</li> <li>▶ Solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Pounds and Pence</li> <li>▶ Ordering Money</li> <li>▶ Estimating Money</li> <li>▶ Four Operations with Money</li> </ul>

#### Small step: Pounds and Pence



Topic: **Money**

Activity: **Money – Who's got it?**

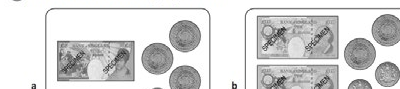
Pupils are shown an amount in pounds and pence using decimal notation and are asked to select the corresponding amount of coins.

#### Money – coin combinations

It is important that you are able to recognise these notes and coins so that you are able to spend and save your money wisely.



1 Calculate the total of each group of cash:

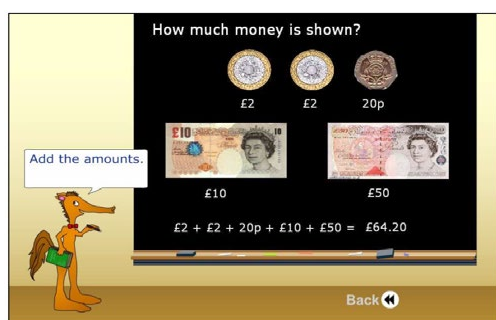


eBook, E series: **Addition and Subtraction, page 40**

An illustration of the notes and coins used as currency in the UK gives pupils the opportunity to recap their values. Pupils identify the total value of coins and notes shown and use different notes and coins to represent values in a variety of ways.

*Note: We are aware that the £5 and £10 notes have been changed and will update these as soon as possible.*

#### Small step: Four Operations with Money



Topic: **Decimals**

Activity: **Money – Adding (GBP)**

Pupils identify and add notes and coins and then select the corresponding total of pounds and pence written in decimal notation.



# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

Mathletics

You order 2 wraps. What is the cost?

Work with the pounds and pence separately.

Topic: **Money**

Activity: **Money Problems – Four Operations**

Pupils use one of the four operations to solve problems involving money. Pupils can use mental or written methods, or a combination of both, to solve the problems. The support area suggests working with the whole and decimal numbers separately, but there are multiple solution strategies.

#### Money – finding change

When you buy something and you don't have the exact combination of notes and coins, you can pay with a larger amount and get the difference back. This is called change.

For example, if I buy some fruit that costs £2.85 with a £5.00 note, I would get back £2.15 in change. Bridge to the next pound. Then add the rest.

1 Practice bridging to the next pound:

a £3.75 to £4.00  
b £1.25 to £2.00  
c £4.60 to £5.00  
d £6.35 to £7.00

eBook, D series: **Addition and Subtraction, pages 48–49**

Pupils use a bridging strategy to calculate change by adding rather than subtracting. Pupils are encouraged to use number lines to support their thinking.

#### Money – using money

When you plan a party, you usually buy things such as food, drink and party favours. It's a good idea to set a budget before you go shopping so that you don't spend too much.

1 Here is a price list of party items:

Food		Drink		Party favours	
Sausage rolls	£3.20	Orange juice	£2.75	10 party hats	£3.80
Pizza slices	£8.95	Lemonade	£3.10	10 balloons	£1.90
Burgers	£7.65	Cola	£3.25	4 game prizes	£5.60

a Which two items of food and drink could I buy for less than £10? Show the change.

eBook, E series: **Addition and Subtraction, pages 42–44**

On page 42, pupils use subtraction to find the amount of change required in different shopping scenarios.

On page 43, within the context of shopping for a party, pupils use addition to total the value of items and subtraction to show the change needed.

Page 44 provides a collaborative game in which pupils use addition and subtraction to solve problems involving money.

Question

You pay for something.  
You use twice as many 10p coins as 5p coins.  
You use half as many 20p coins as 10p coins.  
How much could it have cost?  
How many answers can you come up with?

eBook, E series: **Rich Learning Task – Coin Count**

This Rich Learning Task draws on pupils' understanding of fractions, values of coins and addition to find total values.

The interactive enables pupils to move the coins across the screen and discuss the different ways to solve the problem. A printable student sheet enables pupils to then complete the task independently.

### Examples of alignment to Mathletics

### Block 3 (Week 5) Measurement: Time

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>▶ Read, write and convert time between analogue and digital 12- and 24-hour clocks.</li> <li>▶ Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Hours, Minutes &amp; Seconds</li> <li>▶ Years, Months, Weeks &amp; Days</li> <li>▶ Analogue to Digital – 12 Hour</li> <li>▶ Analogue to Digital – 24 Hour</li> </ul>

#### Small step: Hours, Minutes & Seconds

#### Small step: Years, Months, Weeks & Days

Calculate the number of minutes in 4 hours and 15 minutes.

4 hours = 240 minutes

4 hours 15 minutes =  $4 \times 60 + 15$ , in minutes

=  $240 + 15$ , in minutes

= 255 minutes

Topic: **Time**

Activity: **Time Conversions: Whole Numbers 2**

In this activity, pupils convert between hours and minutes, minutes and seconds and vice versa.

#### Measuring time – time facts

It is important to learn these time facts:

60 seconds = 1 minute	52 weeks = 1 year
60 minutes = 1 hour	12 months = 1 year
24 hours = 1 day	365 days = 1 year
7 days = 1 week	366 days = 1 leap year
14 days = 1 fortnight	

1 How many days are there in:

a 2 weeks = \_\_\_\_ days    b 1 leap year = \_\_\_\_ days    c 48 hours = \_\_\_\_ days

2 Calculate the number of hours in:

a 120 minutes = \_\_\_\_ hours    b 2 days = \_\_\_\_ hours  
c 180 minutes = \_\_\_\_ hours    d 1 week = \_\_\_\_ hours

**eBook, E series: Time, page 12**

This page gives pupils a list of time facts, showing the relationship between the different unit measures of time. Exercises support pupils in applying these facts to convert between different units and solve time problems.

#### Measuring time – calendars

30 days has September, April, June and November. All the rest have 31 days, except February alone which has 28 days clear and 29 days in each leap year.

1 Fill in the missing dates on this calendar:

January							February							March						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
31							1	2	3	4	5	6		1	2	3	4	5	6	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23								21						
24	25	26	27	28	29	30														

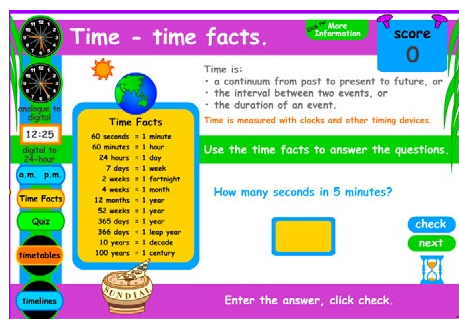
  

April							May							June						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3							1	1	2	3	4	5		
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20					16	17	18	19	20			20						

**eBook, E series: Time, pages 15–16**

This page supports pupils in knowing the number of days in different months. Students apply this learning by completing a calendar and identifying which day of the week various dates fall on.

On page 16 pupils apply their understanding of time facts to solve a range of problems based on children's birthday dates.

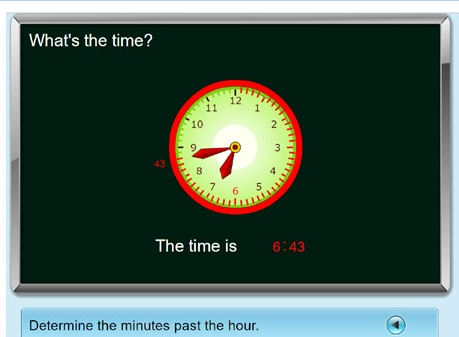


#### Rainforest Maths – Level F – Time – time facts

This page provides pupils with a useful chart comparing the different units of time. The 'More Information' link at the top of the page, gives pupils further useful information and also shows an analogue and digital clock with the current time displayed in hours, minutes and seconds.

Pupils can complete a series of questions which involve converting between different units of time.

#### Small step: Analogue to Digital – 12 Hour

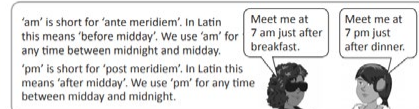


#### Topic: Time

#### Activity: *What is the Time?*

Pupils identify the time on an analogue clock and convert this to digital time.

#### Measuring time – am and pm



#### 1 Write am or pm in each sentence:

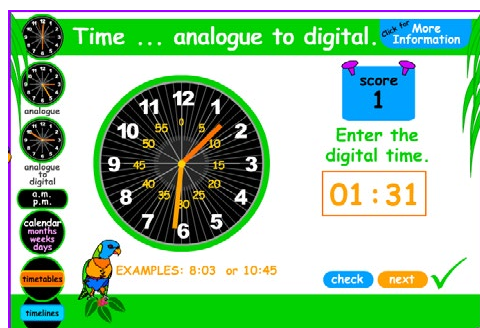
- Jamie walks his dog every morning at 6:30 \_\_\_\_ before breakfast.
- Natalie has a snack after school at 4:00 \_\_\_\_.
- Just after midnight at 2:15 \_\_\_\_, we heard a noise outside.

#### 2 Complete this table by writing the times in digital form. Circle am or pm in the last column:

a Ten past three in the morning		am / pm
b Quarter to nine at night		am / pm

#### eBook, E series: Time, page 11

This page explains to pupils the origin of the terms a.m. and p.m. and how to use them when telling the time. In the following exercises pupils have to record the digital 12-hour time and also identify, from a description of the activity, whether the time needs recording as a.m. or p.m.



#### Rainforest Maths – Level E – Time – analogue to digital

Pupils are shown the time on an analogue clock and are asked to enter the time onto a digital clock. The 'More Information' tab shows pupils the current time on both an analogue and a digital clock. It also explains how a.m. and p.m. is used to indicate day or night when recording 12-hour time.



# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

Mathletics

#### Small step: Analogue to Digital – 24 Hour

Convert from 24-hour time.

23:00 =

11:00 AM

8:00 PM

11:00 PM

2:00 PM

Topic: **Time**

Activity: *What is the Time?*

Although this activity does not involve reading analogue clocks, it does require pupils to convert 24-hour time into 12-hour time and correctly identify whether the time is a.m. or p.m.

#### Measuring time – 24-hour time







Time can be measured using 12-hour time, using am/pm, or 24-hour time.

3:00 pm = 15:00

When writing digital time, a zero is sometimes placed before single-digit hours, so, for example, both 07:00 and 7:00 are correct. When showing 24-hour time a colon (:) is usually put between the hours and minutes (eg 14:00), though you may sometimes see it without (eg 1400).

1 Complete the table with the correct analogue, digital and 24-hour times.

			
08:35	1:00 pm	9:30 pm	18:15

eBook, E series: **Time**, pages 6–8

This page explains to pupils how the 24-hour clock is used and the relationship between time shown using 12-hour time with a.m. and p.m. and recording it as 24-hour time. Pupils complete exercises, showing the same time on an analogue clock and then digitally presenting 12-hour and 24-hour time.

# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

Mathletics

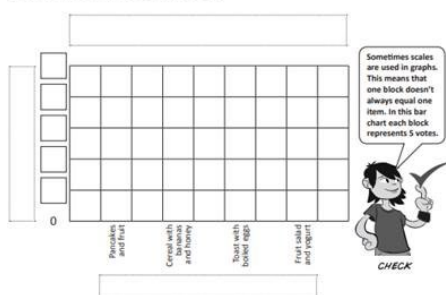
## Examples of alignment to Mathletics

### Block 4 (Weeks 6–7) Statistics

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>▶ Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> <li>▶ Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Interpret Charts</li> <li>▶ Comparison, Sum &amp; Difference</li> <li>▶ Introducing Line Graphs</li> <li>▶ Line Graphs</li> </ul>

#### Small step: Interpret Charts

c Show this data on the bar chart below:



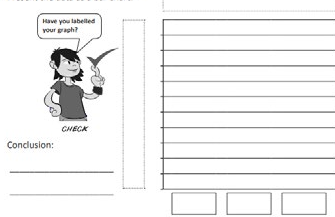
[eBook, D series: Statistics, page 5](#)

Pupils interpret data presented in a tally chart and represent the data in a bar chart with a scale of 1:5.

b Collect your data in this table:

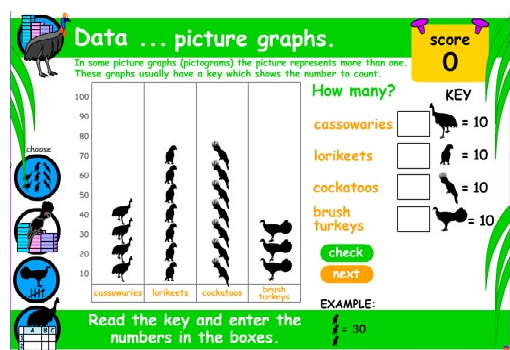
Operation	Tally	Total
x		
+		
÷		

c Present the data as a bar chart:



[eBook, D series: Statistics, page 12](#)

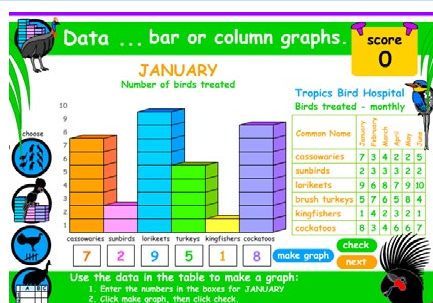
On this page pupils are asked to collect their own data and record it in a tally chart. They are then asked to represent that data in a bar chart.



[Rainforest Maths – Level E – Data – picture graphs](#)

Pupils are shown a pictogram representing birds seen in an area of rainforest in New Zealand. The page also works well on an interactive whiteboard. Pupils could be encouraged to think of questions they could ask a partner using the data shown.

Pupils are asked to read the pictogram with the help of the key provided.



### Rainforest Maths – Level E – Data

The option to show bar graphs is selected from the left-hand menu on the Data page. Pupils use the table to enter information about the number of different birds treated each month in a Tropical Bird Hospital. The graph is created as they click on 'make a graph'. Pupils can be challenged to ask their own questions, based on the data shown.

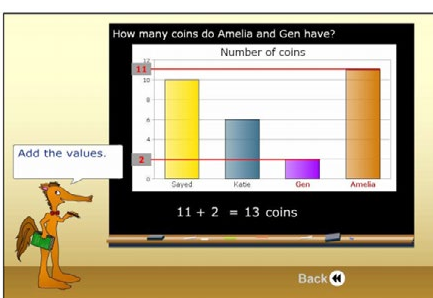
### Small step: Comparison, Sum & Difference



### Topic: Statistics

#### Activity: *Interpreting Tables*

Pupils interpret data presented in a table and solve problems.



### Topic: Statistics

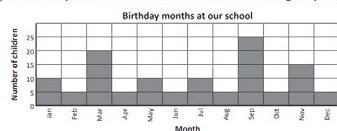
#### Activity: *Bar Chart*

Pupils interpret data presented in a bar chart and solve problems.

### Statistics – bar charts

Bar charts are a clear way of showing and comparing data. There is a horizontal line that has the different categories and a vertical line that has the numbers, also known as the scale. There should always be a heading at the top so it is easy to see what the data is about.

- 1 Answer the questions about the data in the bar chart. The scale goes up in 5s.



- a How many birthdays are there in the first 3 months of the year?
- b How many kids are born in May, June or July?

### eBook, E series: Statistics, pages 4–5

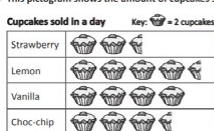
On Page 4 pupils are presented with bar charts, first with vertical bars and then with horizontal bars. Using the information in the charts, pupils answer a range of questions and explain the information they can find when interpreting the charts.

Page 5 involves pupils in constructing bar charts and then answering questions based on their chart.

### Statistics – pictograms

Pictograms use pictures to show how many items are in each category. The have a title that tells us the data that has been collected. A key tells us the value of the symbol. In the first pictogram below, we can see that one whole cupcake stands for 2 actual cupcakes. Half a cupcake stands for 1.

- 1 This pictogram shows the amount of cupcakes sold in each flavour:



- a How many lemon cupcakes were sold?
- b How many choc-chip cupcakes were sold?
- c How many were sold altogether?

- 2 This pictogram shows the number of tickets sold each day in the week leading up to the Friday night school concert. Answer the questions that follow:

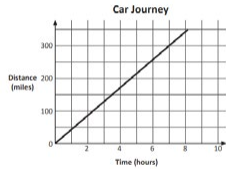
### eBook, E series: Statistics, page 6

Pupils interpret the pictograms shown on page 6 and use the information to answer a range of questions.

#### Small step: Introducing Line Graphs

Statistics – time graphs

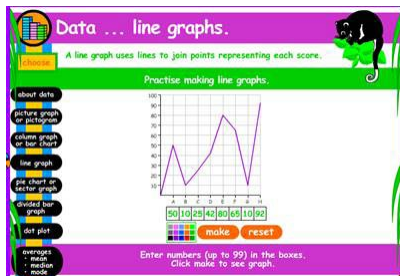
A time graph is a way of showing how something changes as time passes. This time graph shows how far a car has driven on a long journey.



Time graphs can be used to ask and answer questions. For example, if you want to know how far the car has travelled after 2 hours, find '2' on the 'Time' axis, follow its grid line upwards until you reach the graph line, then follow the grid line to the 'Distance' axis and read off the number. This tells you that in 2 hours the car has travelled 100 miles.

**eBook, E series: Statistics, page 14**

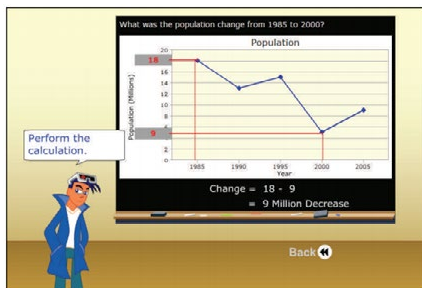
Pupils are introduced to the concept of a line graph to show continuous data. They are shown an example of a car travelling over time. Pupils use the graph to answer a range of questions.



**Rainforest Maths – Level F – Data – line graphs**

This page allows pupils to enter their own data and instantly create a line graph. The page is ideal to share on an interactive whiteboard, with pupils discussing what the graph could show and suggesting appropriate data. Once the graph is created, pupils can be encouraged to come up with their own set of questions which their graph can answer. The data can be changed and the graph recreated.

#### Small step: Line Graphs



**Topic: Statistics**

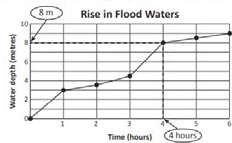
**Activity: Line Graphs: Explanation**

Pupils interpret data represented in a line graph and answer comparison and difference questions. Pupils will need an explanation of range in order to complete this activity.

Line graphs – reading line graphs

Line graphs show how something changes over time in relation to something else. In this topic, we'll look at different examples of line graphs. Look at the line graph below. See how the more time passed, the higher the water got?

In which hour was the water 8 metres deep? Look below for how we read this information:

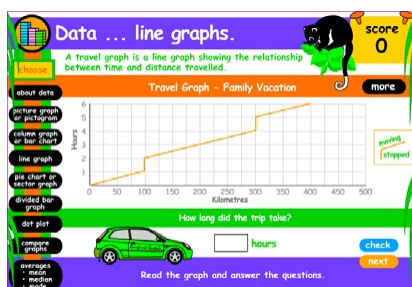


1 Look carefully at this line graph and answer the questions:

**eBook, F series: Statistics, pages 9–14**

Pupils are presented with line graphs showing data from a range of real-life contexts, including temperature, rise of flood waters and travel over time. Pupils use the line graphs, finding the information they need to answer a range of questions.

On page 12, pupils use given data to create a line graph and then answer questions.



**Rainforest Maths – Level G – Data – line graphs**

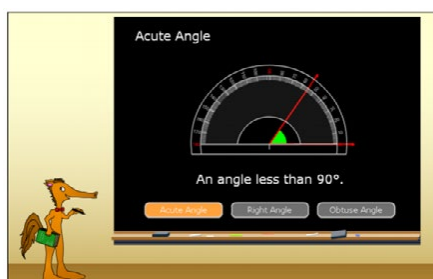
Pupils are shown a line graph which represents the kilometres travelled on a family journey. The information shown is used to answer a range of questions. The line graph can be used on an interactive whiteboard and pupils can suggest further questions to challenge each other. Clicking on 'next' brings up the page where a line graph can be created.

### Examples of alignment to Mathletics

### Block 5 (Weeks 8–10) Geometry: Properties of Shape

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li>Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li>Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<ul style="list-style-type: none"> <li>Identify Angles</li> <li>Compare &amp; Order Angles</li> <li>Triangles</li> <li>Quadrilaterals</li> <li>Lines of Symmetry</li> <li>Symmetric Figures</li> </ul>

#### Small step: Identify Angles

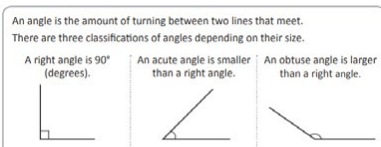


Topic: **Properties of Shapes**

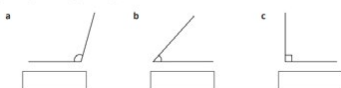
Activity: **What Type of Angle 2?**

Pupils identify a given angle as an acute angle, right angle or obtuse angle. The support area reminds pupils that right angles are exactly  $90^\circ$ , acute angles are between  $0^\circ$  and  $90^\circ$ , while obtuse angles are between  $90^\circ$  and  $180^\circ$ .

Lines, angles and shapes – angles

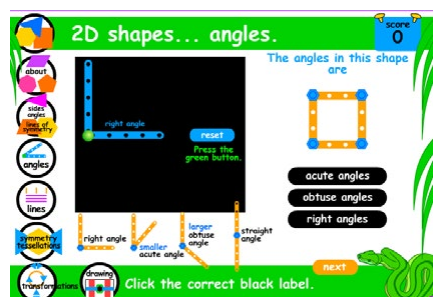


1) Classify each angle as right, acute or obtuse.



eBook, E series: **Geometry, page 2**

The classifications of angles as acute, right and obtuse are explained and illustrated. Pupils label angles and follow instructions to draw the different types of angles.

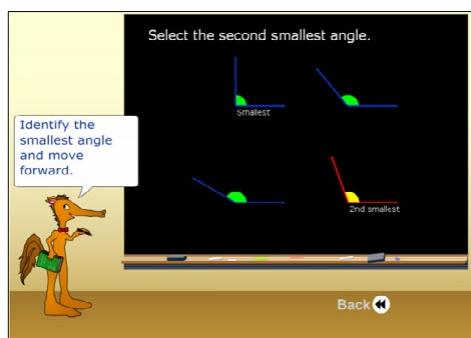


Rainforest Maths – Level E– 2D shapes – angles

Right, acute and obtuse angles are illustrated and labelled on this page. Pupils identify the angles within a range of shapes.



### Small step: Compare & Order Angles

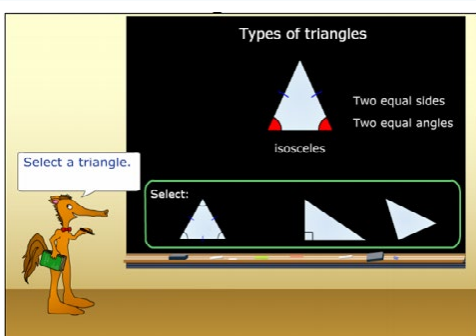


Topic: **Properties of Shapes**

Activity: **Comparing Angles**

In this activity pupils compare angles based on their size. Terms such as 'largest', 'smallest', '2nd largest' and so on are used.

### Small step: Triangles



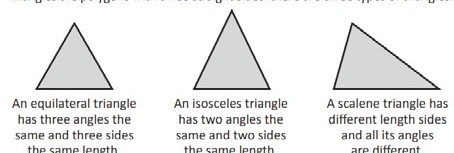
Topic: **Properties of Shapes**

Activity: **Triangle Tasters**

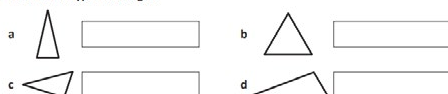
Pupils select the correct triangle given the term 'equilateral', 'isosceles' or 'right angled'. The triangles shown are marked either with equal side lengths or equal angles/right angles.

### Lines, angles and shapes – triangles

Triangles are polygons with three straight sides, there are three types of triangles:



1 Name each type of triangle:



eBook, E series: **Geometry, page 5**

The classification of triangles as equilateral, isosceles and scalene is illustrated and explained. Pupils then label a series of triangles as right angled, equivalent, scalene or isosceles. Finally, pupils are asked to draw different types of triangles, including equilateral, isosceles and scalene.

2D shapes – polygons (flat) or 3D shapes (solid) with three or more straight sides.

sides	angles	group	name	REGULAR sides and angles equal	IRREGULAR
3		triangles		equilateral triangle	isosceles triangle, right-angle triangle, scalene triangle
4		quadrilaterals		square, rhombus, rectangle, parallelogram, trapezium, kite	
5		pentagons			
6		hexagons			
7		heptagons			
8		octagons			
9		nonagons			
10		decagons			

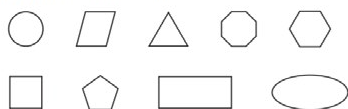
POLYGON: triangle  
isosceles triangle  
• 2 equal sides  
• 2 equal angles  
• 1 line of symmetry

Rainforest Maths – Level E– 2D shapes – about

The table on this page illustrates a comprehensive range of 2D shapes. Clicking on the equilateral, isosceles, scalene and right-angled triangles, opens up a further illustration and detailed description of the key features of each triangle.

### Small step: Quadrilaterals

1 Tick the polygons. Circle the quadrilaterals.



2 Complete this table:

	Name	Number of sides	Number of angles
a	rhombus		
b	pentagon		
c	trapezium		
d	octagon		

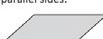
**eBook, E series: Geometry, page 4**

Pupils identify quadrilaterals from a selection of 2D shapes and then complete a table with the number of sides and angles for both quadrilaterals and polygons.

Lines, angles and shapes – types of quadrilaterals

A parallelogram is a quadrilateral with two pairs of parallel sides.

This is a parallelogram. Its opposite sides are an equal length and are parallel to each other.



A square and a rectangle are also parallelograms. They have opposite sides that are equal lengths and are parallel to each other.



A rhombus is a parallelogram. Its opposite sides are an equal length and are parallel to each other. It has four equal sides.



3 How many pairs of parallel lines are there in these parallelograms? Count them:



**eBook, E series: Geometry, pages 6–7**

A range of quadrilaterals, including parallelograms, squares, rectangles and rhombuses are described and illustrated on page 6. Pupils identify these different shapes.

On page 7, a trapezium is described and illustrated. Pupils follow instructions to draw a range of quadrilaterals.

sides/angles	group name	REGULAR sides and angles equal	IRREGULAR
3	triangles	equilateral triangle	isosceles triangle, right-angle triangle, scalene triangle
4	quadrilaterals	square, rhombus	rectangle, parallelogram, trapezium, kite
5	pentagons		
6	hexagons		
7	heptagons		
8	octagons		
9	nonagons		
10	decagons		

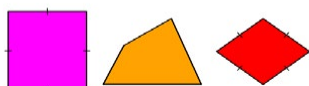


**Rainforest Maths – Level E– 2D shapes**

The table on this page illustrates and labels a comprehensive range of 2D shapes, including quadrilaterals. Clicking on the square, rhombus, rectangle, parallelogram, trapezium or kite opens up a further small window which provides a more detailed description and illustration of each shape.

### Small step: Lines of Symmetry

Which shape has 0 lines of symmetry?



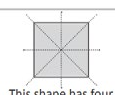
**Topic: Properties of Shapes**

**Activity: Symmetry or Not?**

Pupils identify the shape with the given number of lines of symmetry.

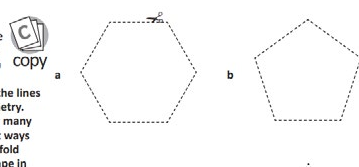
Lines, angles and shapes – symmetry

A shape is symmetrical when you can fold it in half so that one half exactly covers the other half. The fold line is the line of symmetry. Many 2D shapes have more than one line of symmetry.



This shape has four lines of symmetry.

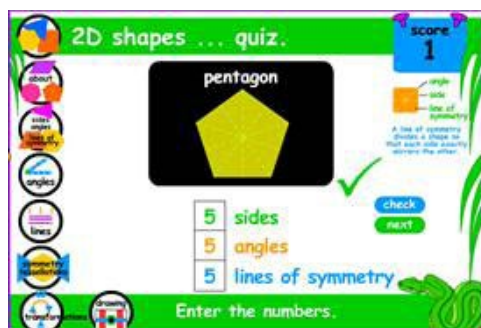
1 Copy this page and cut out each shape. Find all the lines of symmetry. See how many different ways you can fold each shape in



**eBook, E series: Geometry, pages 11–12**

The concept of symmetry is explained and illustrated. Pupils cut out a range of 2D shapes and fold them to identify the number of lines of symmetry.

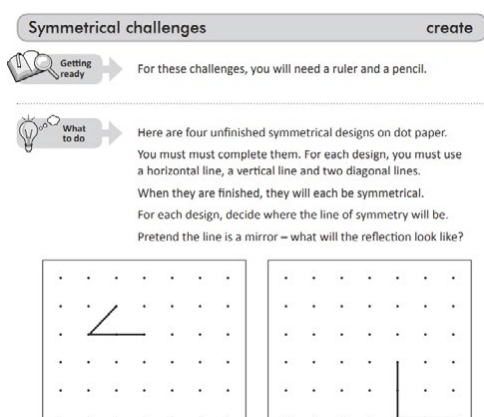
On page 12, pupils mark the lines of symmetry onto a range of different shapes and identify how many lines of symmetry each shape has.



### Rainforest Maths – Level E– 2D shapes – lines of symmetry

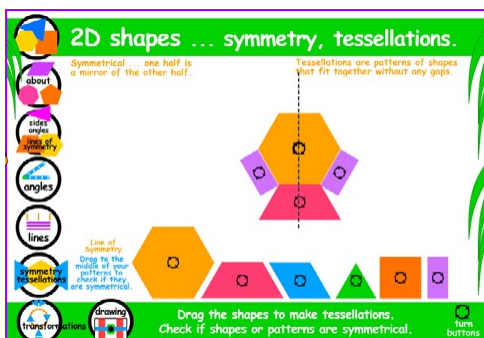
Pupils identify and record the number of sides, angles and lines of symmetry in a range of 2D shapes. This page is ideal for use on an interactive whiteboard and can be extended with discussions comparing shapes and their properties.

### Small step: Symmetric Figures



### eBook, E series: Geometry, page 13

In this challenge, pupils are given the beginning of drawings. They are required to follow instructions to complete the symmetrical drawings on the dot paper.



### Rainforest Maths – Level E– 2D shapes – symmetry, tessellations

This page can be explored by individual pupils or used on the interactive whiteboard to illustrate to the class how to create a symmetrical image. The shapes and the line of symmetry can be moved and rotated.

# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

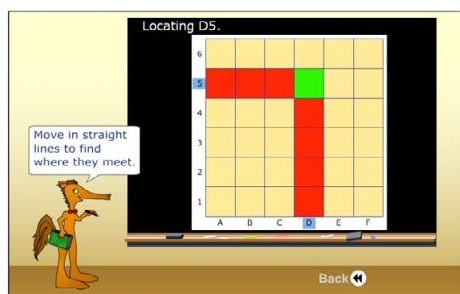
Mathletics

## Examples of alignment to Mathletics

### Block 6 (Week 11) Geometry: Position & Direction

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>Describe positions on a 2-D grid as coordinates in the first quadrant.</li> <li>Plot specified points and draw sides to complete a given polygon.</li> <li>Describe movements between positions as translations of a given unit to the left/right and up/down.</li> </ul>	<ul style="list-style-type: none"> <li>Describe Position</li> <li>Draw on a Grid</li> <li>Move on a Grid</li> <li>Describe Movement</li> </ul>

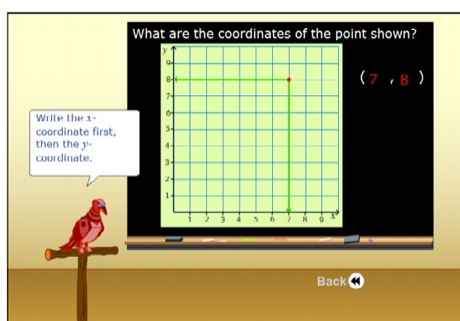
#### Small step: Describe Position



Topic: **Position and Direction**

Activity: **Coordinate Graphs: 1<sup>st</sup> Quadrant**

This activity is a good introduction to locating intercepting points by moving in straight lines from the  $x$  axis and the  $y$  axis. Pupils locate a position on a grid using coordinates in the form of a letter and number, eg, 'D5'.



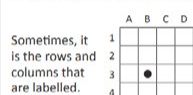
Topic: **Position and Direction**

Activity: **Coordinate Graphs: 1<sup>st</sup> Quadrant**

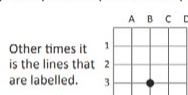
Pupils record the coordinates for a given point on a coordinate graph. The support area reminds pupils to record the  $x$  coordinate before the  $y$  coordinate.

#### Position – grids and coordinates

Maps are often set up in a grid with letters and numbers down the sides. We use these letters and numbers to pinpoint a particular part of the map.



Sometimes, it is the rows and columns that are labelled.



Other times it is the lines that are labelled.

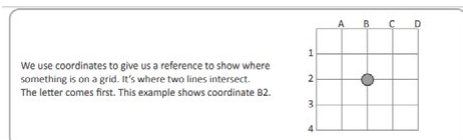
1 Answer the questions about what is in each part of the grid.

- Name the shape at C4.
- Multiply the number at A2 by 3.
- Name the shape at B2.
- Add the numbers at D1 and A1.

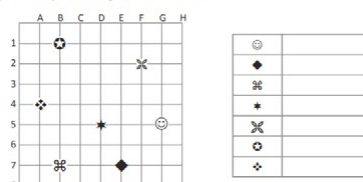
1	12	●	■	2
2	9	●	6	16
3	●	5	T	4
4	▲	↓	●	8
	A	B	C	D

eBook, E series: **Geometry, page 21**

The concept of using coordinates to describe position on a grid is explained and illustrated. Labelling on the grid lines and on the rows and columns is shown, and pupils identify a range of shapes using coordinates to find their position on a grid.

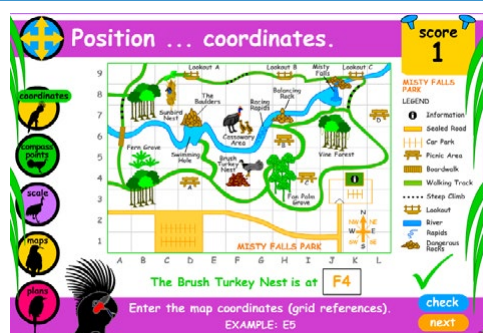


1 For each symbol on the grid, write the coordinates.



eBook, F series: Geometry, page 31

Pupils record the coordinates of shapes on a grid using a letter and a number as the coordinates.



Rainforest Maths — Level F — position — coordinates

Pupils describe the position of given places on a map by recording the coordinates. This page would work well on an interactive whiteboard where pupils could also describe the location of different features by giving the coordinates.

### Small step: Draw on a Grid

Position – grids and coordinates

4 Draw and label x and y axes. Then place the following shapes at the correct locations:

- a a square at (3, 1)
- b a triangle at (5, 0)
- c a star at (4, 2)
- d a circle at (2, 6)
- e a heart at (1, 3)



eBook, E series: Geometry, page 23

In this exercise pupils use the given coordinates to locate and draw a range of shapes.

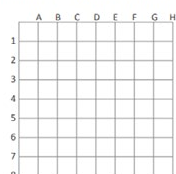
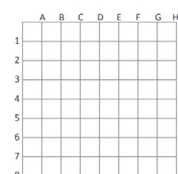
In exercise 5, pupils mark coordinates onto the grid and then use a ruler to join them, creating 2D shapes.

Position – coordinates

1 Plot and join the following points. When you've done that, make each design symmetrical.

a D1 to A4, A4 to D4, D4 to A6, A6 to C8

b D1 to B1, B1 to D3, D3 to A3, A3 to D7, D7 to B8



2 Complete the design according to the instructions.

a Plot and join the following points:

B1 to B7

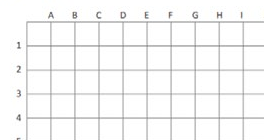
B7 to H7

H7 to H1

H1 to B1

B1 to H7

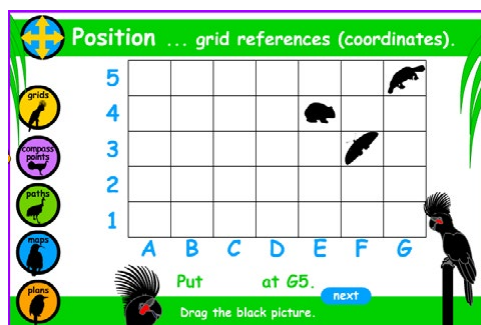
B7 to H1



eBook, F series: Geometry, page 32

Pupils plot and join coordinate points on a grid to create a symmetrical design and 2D shapes.





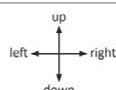
#### Rainforest Maths — Level E — position — grid references

Pupils drag a range of animals onto a grid using the given coordinates.

#### Small step: Move on a Grid

##### Position – following directions

On this page, you will practise following the directions **up**, **down**, **left** and **right**.

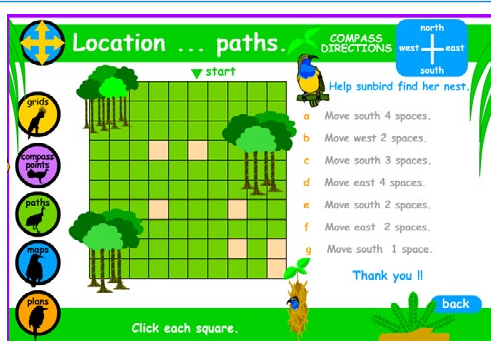


- 1 Three kids are playing a computer game where they have to move through as many stars as possible to get the most points. Colour each player's paths according to the directions below:



#### eBook, E series: Geometry, page 19

Pupils follow directions, moving up, down, left and right across a grid to mark paths followed on a computer game.



#### Rainforest Maths — Level E — position — paths

Pupils use compass directions, north, south, east and west, to mark a path on a grid. Pupils click the appropriate square after each move and are reassured that their move is correct, before moving on to the next instruction.

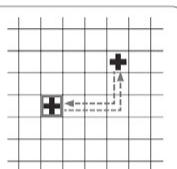
#### Small step: Describe Movement

##### Position – translations

"Sliding" a shape from one position to another without turning it can be described as a **translation**.

We can translate the top cross into the square by moving it 2 squares down and 3 squares left.

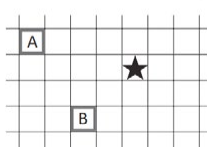
We could translate it back again by moving it 3 squares right and 2 squares up.



- 1 Describe the following translations of the star:

a to square A

b to square B



#### Rainforest Maths — Level E — position — paths

Pupils are shown how to describe movement on a grid using up, down, left and right. Exercise 1 gives pupils the opportunity further this skill as they describe the path from the star to different locations marked on a grid.

# Year 4 White Rose Maths (WRM)

## Summer Scheme of Learning, 2018

### Alignment with Mathletics

Mathletics

#### Live Mathletics

##### What's in level 3?

Addition from 1 - 50

$3 + 9 = ?$

Subtraction from 1 - 50

$6 - 3 = ?$

2s, 3s, 4s, 5s and 10s times tables

$2 \times 9 = ?$

Doubles and halves up to 50

$15 + 15 = ?$

Addition from 1 - 20 with a missing addend

$8 + ? = 20$

##### What's in level 4?

Addition from 1 - 100

$35 + 30 + 10 = ?$

Subtraction from 1 - 100

$30 - 6 = ?$

Times tables to  $10 \times 10$

$8 \times 6 = ?$

Doubles and halves up to 100

$\text{Half of } 96 = ?$

2s, 3s, 4s, 5s and 10s division facts

$30 \div 3 = ?$

Addition from 1 - 50 with a missing addend

$25 + ? = 50$

Times tables to  $10 \times 10$  with a missing factor

$7 \times ? = 49$

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

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

Teachers can set minimum levels 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](http://www.mathletics.com/contact)



A 3P Learning Product