



# Year 3 White Rose Maths (WRM) Summer Scheme of Learning, 2018 Alignment with Mathletics

## Year 3 – 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				Number – Multiplication and Division			Consolidation	
Spring	Number - Multiplication and Division			Measurement: Money	Statistics		Measurement: length and perimeter		Number - Fractions		Consolidation	
Summer	Number – fractions			Measurement: Time		Geometry – Properties of Shapes		Measurement: Mass and Capacity			Consolidation	

This alignment document has been based on the White Rose Maths (WRM) scheme of learning available on the TES website.





# Year 3 White Rose Maths (WRM) Summer Scheme of Learning, 2018

Mathletics

## Content

### Examples of alignment to Mathletics

Block 1 (Weeks 1–3) Number: Fractions .....	01
Block 2 (Weeks 4–6) Measurement: Time .....	05
Block 3 (Weeks 7–8) Geometry: Properties of Shape .....	12
Block 4 (Weeks 9–11) Measurement: Mass & Capacity .....	17

### 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 practise 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 03 WRM Aligned



Data-Driven  
Teaching and  
Learning



Differentiation



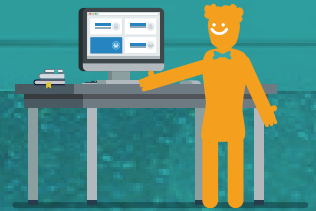
Feedback and  
Reflection



Student Growth



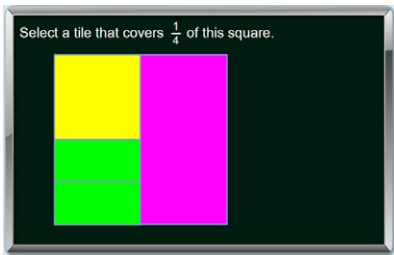
Blended  
Learning



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

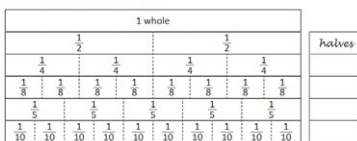
Activity: *Unevenly partitioned shapes 1*

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

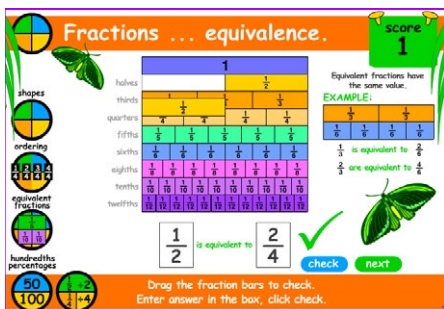
This fraction wall shows fractions that are equivalent. Equivalent fractions are fractions that are the same amount. How many equivalent fractions can you find?

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.

### Small step: Equivalent Fractions (2)

Slide the dot to the point on the number line that is equivalent to the fraction shown below:

$$\frac{3}{4}$$

Topic: Fractions

Activity: *Equivalent Fractions on a Number Line 1*

Pupils first identify the fractions on the unmarked number lines by counting the segments. Then it is much easier for them to visualise the placement of the equivalent fraction.

1 Label the missing fractions on these number lines:

a  $\frac{0}{4}$   $\frac{2}{4}$   $\frac{4}{4}$

b  $\frac{0}{8}$   $\frac{2}{8}$   $\frac{4}{8}$   $\frac{6}{8}$   $\frac{8}{8}$

c What do you notice about  $\frac{2}{4}$  and  $\frac{4}{8}$ ?

2 Label this number line with quarters above the line and eighths below the line:

3 Draw a line to match each of these fractions to the correct positions on the number line. Use the number lines at the top of the page to help you.

$\frac{7}{8}$   $\frac{3}{4}$   $\frac{1}{2}$   $\frac{5}{8}$   $\frac{1}{4}$

eBook, D series: Fractions, page 10

Pupils place equivalent fractions on a number line (halves, quarters and eighths).

Types of fractions – fifths and tenths

4 Complete this equivalent fraction number line. The first two have been done for you.

Equivalent means they are the same amount.

5 Place these fractions on the number line:  $\frac{2}{5}$ ,  $\frac{1}{2}$ ,  $\frac{3}{10}$ ,  $\frac{7}{10}$ ,  $\frac{1}{5}$

eBook, D series: Fractions, page 14

Pupils place equivalent fractions on a number line (fifths and tenths).

### Small step: Equivalent Fractions (3)

Enter the missing denominator to show equivalent fractions.

$$\frac{2}{8} = \frac{1}{\square}$$

one whole  $\frac{1}{1}$

halves  $\frac{2}{2}$

thirds  $\frac{3}{3}$

quarters  $\frac{4}{4}$

sixths  $\frac{6}{6}$

eighths  $\frac{8}{8}$

Each row of the fraction wall represents one whole and is equivalent to the other rows.

Topic: Fractions

Activity: *Equivalent Fraction Wall 1*

An interactive fraction wall provides support for pupils as they identify equivalent fractions (halves, thirds, quarters, sixths and eighths).

Types of fractions – equivalent fractions

1 Rewrite these fractions in order from smallest to largest:

$\frac{4}{5}$   $\frac{9}{10}$   $\frac{7}{10}$   $\frac{2}{5}$   $\frac{3}{10}$

2 Here is a fraction wall that has been broken up into pieces. Label the pieces:

a  $\frac{1}{2}$

b  $\frac{1}{4}$

c  $\frac{1}{10}$

d  $\frac{1}{5}$

3 Match the equivalent fractions to find out an interesting animal fact.

Q: What is something that a rat can do for longer than a camel?

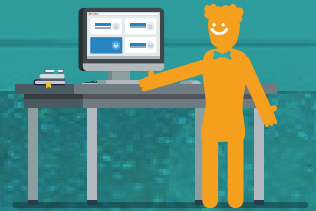
First word: A =  $\frac{2}{5}$  T =  $\frac{3}{10}$  L =  $\frac{1}{5}$  S =  $\frac{6}{10}$

Second word: U =  $\frac{1}{5}$  H =  $\frac{3}{10}$  I =  $\frac{4}{10}$  W =  $\frac{2}{5}$  T =  $\frac{6}{10}$  O =  $\frac{3}{5}$

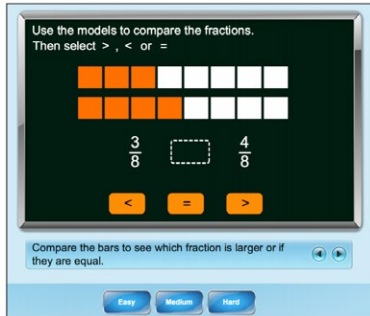
Third word: A =  $\frac{3}{10}$  T =  $\frac{1}{5}$  E = 1 R =  $\frac{2}{10}$  W =  $\frac{1}{5}$

eBook, D series: Fractions, pages 15–16

Pupils use the visual support of fraction strips to find equivalent fractions.



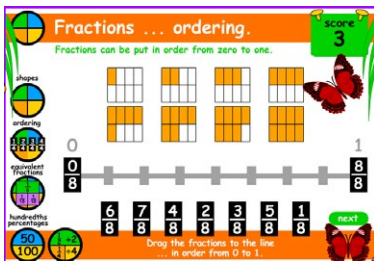
Small step: Compare Fractions  
Small step: Order Fractions



Topic: Fractions

Activity: *Compare Fractions 1a*

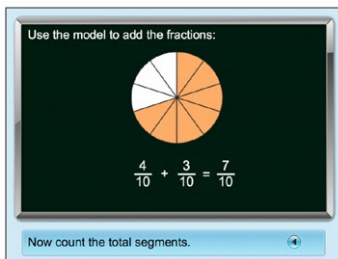
Pupils compare fractions with the same denominator and use symbols to show the relationship. An interactive model provides support for students if they wish to use it.



Rainforest Maths — Level D — Fractions — ordering

Pupils drag the fractions into the correct order on the number line. All fractions have the same denominator. The shaded fraction visuals located above the number line support pupils' understanding.

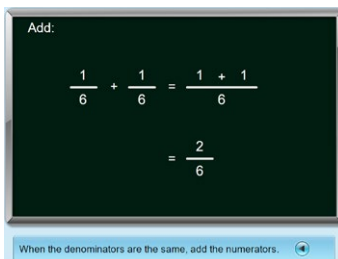
Small step: Add Fractions  
Small step: Subtract Fractions



Topic: Fractions

Activity: *Add Subtract Fractions 1*

In this activity, pupils add and subtract like fractions with the support of an interactive model. The model helps to show the relationship between the parts and the whole.



Topic: Fractions

Activity: *Add Like Fractions*

Pupils add fractions with the same denominator and a sum less than 1.

Subtract:

$$\frac{4}{6} - \frac{3}{6} = \frac{\square}{6}$$

Topic: Fractions

Activity: *Subtract Like Fractions*

Pupils subtract fractions with the same denominator.




# Year 3 White Rose Maths (WRM) Summer Scheme of Learning, 2018


Mathletics

## Adding and subtracting fractions – with the same denominator

Remember: There are two parts to a fraction.  
The number above the line (the **numerator**) ----- 1  
and the number below (the **denominator**) ----- 4

Can you remember what each number means?  
The **denominator** tells us how many equal parts the shape or quantity or number is split into. The **numerator** tells us how many of these parts we have.  
It is straightforward to add or subtract fractions with the same denominator.  
You simply add or subtract the numerators.



So,  $\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$  

$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$  

### eBook, D series: Fractions, page 17

This explanation shows and describes how to add and subtract fractions with the same denominator. Pupils use the visuals to help complete exercises, reinforcing their understanding.

## Adding and subtracting fractions – word problems

- 1 Solve these addition and subtraction fraction problems.
- a I cut up a pizza into quarters. I eat one quarter.   
What fraction of the pizza is left?
- b Jo bakes a cake and cuts it into eighths. Her friend Sarah eats  $\frac{3}{8}$  of it and Jo eats  $\frac{2}{8}$ .  
How much of the cake have they eaten altogether?   
How much is left?  

### eBook, D series: Fractions, page 18

Following on from page 17, this page contains word problems that involve adding and subtracting fractions with the same denominator.

**Fractions ... like fractions.** score 0

Like fractions have the same denominator.

To add like fractions:  
• add the numerators.  
• the denominators stay the same.

EXAMPLE:  $\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$

$\frac{1}{5} + \frac{2}{5} = \text{---}$

check next

Enter the numbers in the boxes, click check.

### Rainforest Maths – Level F – Fractions – like fractions

Pupils explore adding fractions with the same denominator. They can then click 'check' for instant feedback. If a mistake is made, pupils can enter a new answer and check again.

**Fractions ... like fractions.** score 0

Like fractions have the same denominator.

To subtract like fractions:  
• subtract the numerators  
• the denominators stay the same.

EXAMPLE:  $\frac{7}{10} - \frac{3}{10} = \frac{4}{10}$

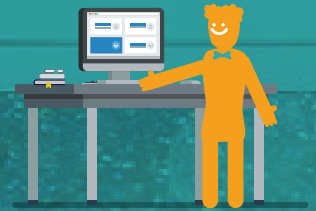
$\frac{7}{9} - \frac{2}{9} = \text{---}$

check next

Enter the numbers in the boxes, click check.

### Rainforest Maths – Level F – Fractions – like fractions

A clear and concise explanation of how to subtract fractions with the same denominator is given, with an example. Pupils complete subtraction of fractions with the same denominator. They can then click 'check' for instant feedback. If a mistake is made, pupils can enter a new answer and check again.



Examples of alignment to Mathletics  
Block 2 (Weeks 4–6) Measurement: Time

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>▶ Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks.</li> <li>▶ Estimate and read time with increasing accuracy to the nearest minute.</li> <li>▶ Record and compare time in terms of seconds, minutes and hours.</li> <li>▶ Use vocabulary such as o'clock, a.m/p.m., morning, afternoon, noon and midnight.</li> <li>▶ Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li>▶ Compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<ul style="list-style-type: none"> <li>▶ Months and Years</li> <li>▶ Hours in a Day</li> <li>▶ Telling the Time (1)</li> <li>▶ Telling the Time (2)</li> <li>▶ AM and PM</li> <li>▶ 24-Hour Clock</li> <li>▶ Finding the Duration</li> <li>▶ Comparing the Duration</li> <li>▶ Start and End Times</li> <li>▶ Measuring Time in Seconds</li> </ul>

Small step: Months and Years

Which three months come after April? Put the months in the correct order.

Topic: Time

Activity: *Months After and Before*

In this activity, pupils identify the months that come before and/or after a given month.

Which day? 9 November 2005

Find the day of the week.

Answer = Wednesday

Back

Topic: Time

Activity: *Using a Calendar*

Pupils use a calendar to locate the day of the week for a particular date. The support area reinforces the steps required to answer the question. That is, locate the month first and then match the date to the day of the week.



### Measuring time – calendars

A calendar shows how the year is organised into months, weeks and days.

One year can be thought of as 12 months long or 52 weeks long or 365 days long (sometimes 366 days long).



1 Answer the questions about the first 2 months of the year.

January						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

- a How many school days are there in February? \_\_\_\_\_
- b What day of the week is the 20th January? \_\_\_\_\_

eBook, D series: Time, page 13

This page outlines the number of months, weeks and days in a year. Pupils use 2 months from a calendar to answer questions.

### Calendar match

apply



Getting ready

This is a race for 2 players. You will need a copy of this page because you will need to cut out the cards below.



What to do

Cut out the months of the year cards (there are 24). Shuffle them and lay them face down. Take turns to draw a card and tick off an item on the checklist. The person who ticks off all their items first wins.

January	January
February	February
March	March
April	April

#### Checklist

- 1 The 8th month of the year.
- 2 Your birthday month.
- 3 The month before Christmas.

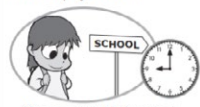
eBook, D series: Time, page 16

In this paired activity, pupils match months of the year with events. Pupils can also use the cards provided to order the months of the year.

## Small step: Hours in a Day

### Time – a day

There are 24 hours in a day. There are 12 hours on a clock so a day is made up of '2 clocks'.

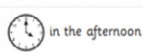
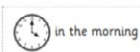


You are probably in school at 9 o'clock in the morning.



You are probably in bed at 9 o'clock at night.

1 Write or draw what you might be doing at:



eBook, C series: Time and Money, page 17

Pupils are asked to identify different activities they are likely to be doing at different times of the day. They are encouraged to recognise that a day consists of 2 full rotations on a clock and that times repeat, for example, 9 o'clock in the morning and 9 o'clock in the evening.

### Measuring time – time facts

It is important to learn these time facts:

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

7 days = 1 week

1 Use the information above to answer these:

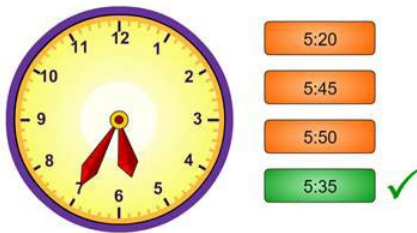
- a hours in 1 day = \_\_\_\_\_ b hours in 2 days = \_\_\_\_\_
- c minutes in 2 hours = \_\_\_\_\_ d days in 2 weeks = \_\_\_\_\_
- e seconds in 1 minute = \_\_\_\_\_ f seconds in  $\frac{1}{2}$  a minute = \_\_\_\_\_

eBook, D series: Time, page 10

This page shows the time facts of how many seconds in a minute, minutes in an hour and hours in a day. Pupils use the facts to answer questions and reinforce their learning.



Small step: Telling the Time (1)



Topic: Time

Activity: *Five Minute Times*

Pupils read times to the nearest 5 minutes on an analogue clock and select the correct digital time from 4 multiple-choice options.

Time – to the nearest 5 minutes

Analogue clocks have two scales. The numbers mark the scale of the hour hand. When the hour hand moves between one number and the next an hour has passed.

The lines around the outside of the clock face mark the scale of the minute hand, with each line representing one minute. So, when the minute hand moves between one number and the next it marks the passing of five minutes. This clock show '5 minutes past 3' or '5 past 3'.

If the minute hand moves on another five minutes it will now be pointing to the 2, and the time will be '10 past 3'.



1 Match the clock faces to the times.



25 past 9   10 past 5   10 past 10   5 past 6   20 past 2   5 past 8

eBook, C series: *Time and Money*, pages 14–16

These pages provide an introduction to reading time to the nearest 5 minutes. Pupils practise identifying the time on analogue clocks to the nearest 5 minutes.

On page 16, common misconceptions are addressed, such as confusing the hour and minute hand.

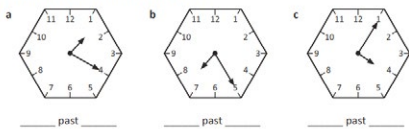
Telling time – five minute intervals past the hour

It takes 5 minutes for the minute hand to move from one number to the next. The time shown on this clock is 20 minutes past 6.



20 past 6

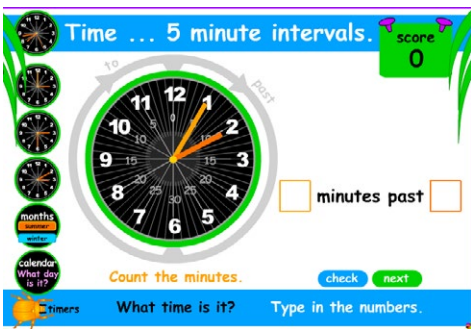
1 Complete these labels of the clock hands:



eBook, D series: *Time*, pages 3–4

Page 3 explores telling the time to the nearest 5 minutes past the hour. Pupils read the time on clocks and then draw in hands to represent given times.

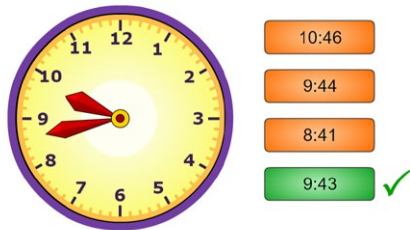
Page 4 moves on to telling the time to the nearest 5 minutes to the hour, with exercises where pupils read the time and then represent the time on clocks.



Rainforest Maths – Level C – Time

This activity provides a clear visual which supports pupils telling the time in 5-minute intervals, both past and to the hour. Examples also reinforce half past by showing that this is also 30 minutes past the hour. Quarter to and past is also shown as 15 minutes past and to the hour.

### Small Step: Telling the Time (2)



Topic: **Time**

Activity: *What is the Time?*

Pupils read times in half-hour intervals, then 5-minute intervals before harder questions require them to read time to the nearest minute.

#### Telling time – to the nearest minute

Each small division on a clock represents 1 minute. As with telling the time to the nearest 5 minutes, we say 'minutes past' the last hour for times up to 30 minutes after the hour, and 'minutes' to the next hour for the 30 minutes coming up to the next hour. This clock shows '16 minutes to 6'.



1 Write the time shown on the clock face to the nearest minute.



eBook, E series: **Time, page 3**

Pupils build on their understanding of telling the time to the nearest 5 minutes, with a concise explanation and visual example. Exercises challenge pupils to read the time to the nearest minute and then draw hands onto the clocks to represent given times.



Rainforest Maths – Level D – Time – analogue

Pupils identify the time on an analogue clock to the nearest minute.

### Small step: AM and PM

#### Measuring time – am and pm

am means before midday.  
pm means after midday.



1 Connect the times to either am or pm with a line:

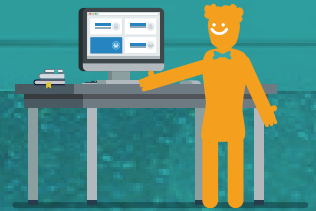
- a 6 o'clock in the evening •
- b 6 o'clock in the morning •
- c 2 o'clock in the morning •
- d 2 o'clock in the afternoon •
- e 1 o'clock after bedtime •
- f 1 o'clock after lunch •



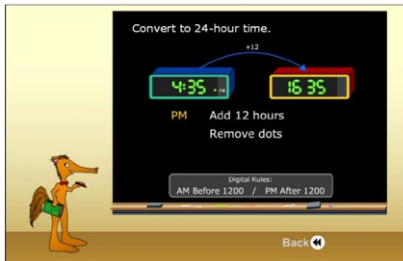
eBook, D series: **Time, page 9**

The concept of 'am' and 'pm' is explained. Pupils draw lines from times to sort them into am or pm.

In the next exercise they circle the time which matches the description.



Small step: 24-Hour Clock

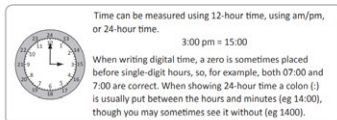


Topic: Time

Activity: *24 Hour Time*

Pupils convert 12-hour time to 24-hour time and vice versa.

Measuring time – 24-hour time

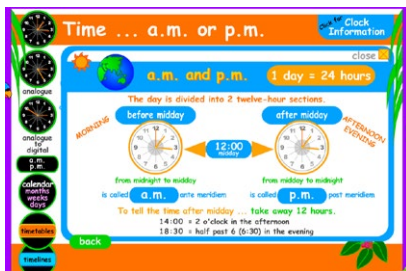


Complete the table with the correct analogue, digital and 24-hour times.

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

eBook, E series: Time, page 6

The concept of the 24-hour clock is explained. Pupils then complete a table to show related clock faces, time as 'am' and 'pm' and then recorded as 24-hour time.

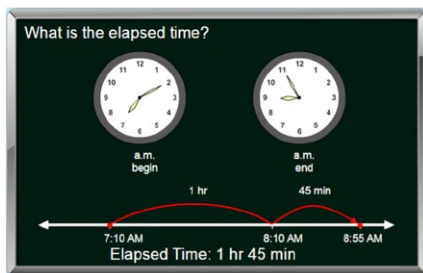


Rainforest Maths – Level D – Time – a.m. / p.m

Selecting 'Click for Clock Information' brings up a screen with an explanation of am and pm and this is then related to recording time in 24-hour format.

Closing this screen takes pupils back to a task which asks them to identify whether a time given in 24-hour format is am or pm.

Small step: Finding the Duration



Topic: Time

Activity: *Elapsed Time*

Pupils are shown 2 analogue clocks and are asked to calculate the elapsed time between them. The support area encourages the use of a number line to find the elapsed time.

Measuring time – timetables

The questions below relate to Zara the zoo keeper's typical daily timetable:

5:15 am	Wake up, have breakfast
6:00 am	Feed the lions and tigers
6:30 am	Wash the elephants
7:00 am	Clear out reptile cages
9:00 am	Weigh the baby penguins and record their growth
10:15 am	Train the seals to cartwheel
11:30 am	Play with the pandas
12:30 pm	Lunch
1:30 pm	Guide a school tour
2:45 pm	Bottle feed the baby possums
3:15 pm	Scrub the shells of the giant tortoises
4:00 pm	Give a talk on endangered animals
5:00 pm	Guide a twilight tour
6:00 pm	Close zoo gates



a How long does it take Zara to feed the lions and tigers?

eBook, D series: Time, page 14

Pupils are given a timetable of a zoo keeper's day. Using this timetable, they answer questions, finding out the duration of different activities when given a start and end time.

**Time - timetables**

RAINFOREST WILDLIFE SANCTUARY

Today's timetable

Activity	Start Time	End Time
Lorikeet Feeding	8:30	12:30
HANG ON - rebuilding the Sanctuary House	9:00	1:00
Nocturnal House	9:50	2:00
Snake Show	10:15	2:15
Cassowary Feeding	10:30	2:30
Meet a Marsupial	10:50	2:50
Crocodile Feeding	11:00	3:00
Rainforest Talk	11:15	3:15

What time are the lorikeets fed in the morning?

Enter answer in the box, then click check.

### Rainforest Maths – Level D – Time – timetables

Pupils are shown a timetable from a wildlife sanctuary. They are asked to complete questions, finding times and durations of activities. The timetable also provides a real-life example to engage pupils in calculating durations of time.

Rich Learning Task, Series D: Passing Time

How much time has passed?

Start: 0:00  
End: 0:00

How much time has passed?

Hours:   
Minutes:

Submit  
Reset Clock

### Rich Learning Task, Series D: Passing Time

The interactive is designed to be used on a large screen. The start and end time can be set to the nearest minute and pupils then work out the duration between the times. The exercise also has a sheet featuring pairs of clocks, so pupils can choose to work independently.

## Small step: Comparing the Duration

- 3 Use your basic time facts to work out who took longer. Circle the correct answer:
- a Max took 75 seconds to brush his teeth.  
Milly took  $1\frac{1}{2}$  minutes.      Max / Milly
  - b Charlie completed the hike after 130 minutes.  
It took Claire 2 hours.      Charlie / Claire
  - c The Darnleys went on holiday for 22 days.  
The Sommers went on their holidays for 3 weeks.      Darnleys / Sommers

### eBook, D series: Time, page 10

In exercise 3, pupils look at examples of activities where the duration is given in different time measures. They compare the times and state which is the longer time period.

## Small step: Start and End Times

What time will it be  
1 hr 20 min after 7:40 AM?

hr    min    AM/PM

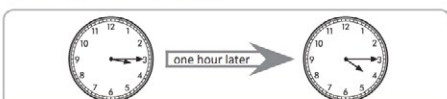
select  
AM  
PM

### Topic: Time

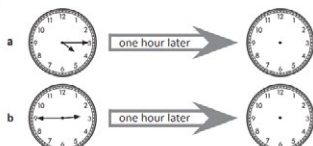
#### Activity: *What Time Will it Be?*

Pupils are asked to represent time in digital format. They are provided with a start time and then asked to calculate what time it will be, given an hour and minute combination. Pupils are also required to use am and pm to consolidate their understanding.

### Measuring time – time trails

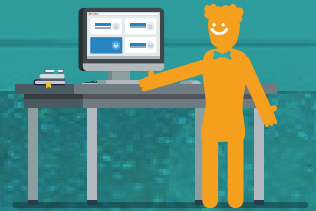


1 Show the time that is one hour later:



### eBook, D series: Time, pages 11–12

Pupils begin by showing the time an hour after a given start time, and then an hour before an end time. They move on to explore half an hour before and after a given time, and then complete clocks to show a range of time intervals.



Small step: Measuring Time in Seconds

Topic: **Time**

Activity: *Time Conversions: Whole Numbers 1*

Pupils convert minutes to seconds and minutes to hours and vice versa. All questions involve conversions to whole minutes or hours.

Rainforest Maths — Level C — Time — timers

Pupils can use this interactive task to develop a concept of the duration of 10 seconds and/or 1 minute. Teachers can use the timer to explore other actions that can be completed within 10 seconds and/or 1 minute.



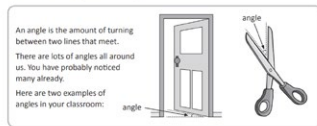
## Examples of alignment to Mathletics

### Block 3 (Weeks 7–8) Geometry: Properties of Shape

National Curriculum Objectives	WRM Small Steps
<ul style="list-style-type: none"> <li>▶ Recognise angles as a property of shape or a description of a turn.</li> <li>▶ Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.</li> <li>▶ Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> <li>▶ Draw 2-D shapes and make 3-D shapes using modelling materials.</li> <li>▶ Recognise 3-D shapes in different orientations and describe them.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Turns and Angles</li> <li>▶ Right Angles in Shapes</li> <li>▶ Compare Angles</li> <li>▶ Draw Accurately</li> <li>▶ Horizontal and Vertical</li> <li>▶ Parallel and Perpendicular</li> <li>▶ Recognise and Describe 2D Shapes</li> <li>▶ Recognise and Describe 3D Shapes</li> <li>▶ Make 3D Shapes</li> </ul>

#### Small step: Turns and Angles

Lines and angles – angles

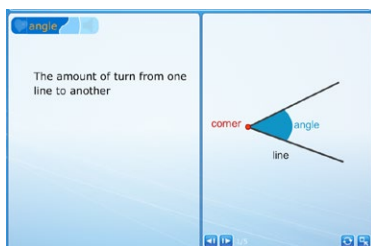


1 Look at the angle on each open chest lid. Trace the angle and then order the treasure chests' lids from the smallest to largest angle.



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

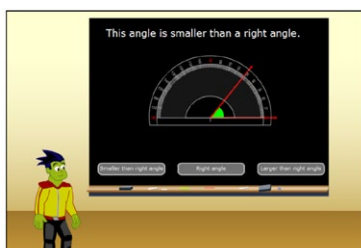
This page includes an introduction to angles and exercises requiring pupils to identify angles in objects.



**Concept Search – Angle**

The definition of an angle is provided along with an animation showing angle as the amount of turn between 2 lines that meet.

#### Small step: Right Angles in Shapes



**Topic: Properties of Shapes**

**Activity: Right Angle Relation**

This activity helps pupils become familiar with right angles as they identify whether an angle is the same as, larger than or smaller than a right angle.



Lines and angles – angles

A right angle is an angle where two lines meet at a square corner.  
Make a right angle tester by folding a piece of paper like this:

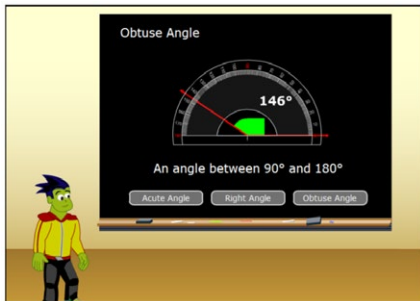
**Step 1:** Fold a piece of paper in half.  
**Step 2:** Fold the same piece of paper in half again.  
**Step 3:** Make sure that the creases are pressed down firmly.

You have made the corner of a square which is a right angle.  
A right angle is 90 degrees (90°).

eBook, D series: [Geometry, page 7](#)

Pupils fold a piece of paper to create a right angle at the corner. They then identify right angles in shapes and look for them in the classroom environment.

Small step: Compare Angles



Topic: [Properties of Shapes](#)

Activity: [What Type of Angle 2?](#)

Pupils select the correct label for a given acute, right or obtuse angle.

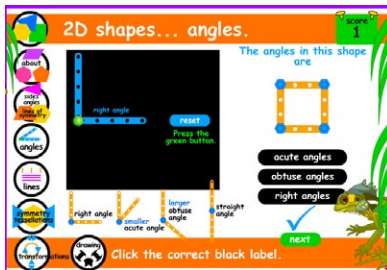
Lines and angles – angles

If an angle is smaller than a right angle, it is called an **acute** angle; if it is larger it is known as an **obtuse** angle.  
Make an angle tester with two straight pieces of cardboard joined with a paper fastener.

1 Use your angle tester to measure and compare these angles. Order them smallest to largest by writing 1 to 4 in the box. Write whether each is an acute, obtuse or right angle.

eBook, D series: [Geometry, page 6](#)

This page introduces acute and obtuse angles, in addition to right angles. Pupils make an angle tester and complete exercises to reinforce their learning.



Rainforest Maths – Level D – 2D Shape – angles

This page provides a clear visual and explanation of right, acute and obtuse angles. Pupils identify the angles in a range of 2D shapes.

Small step: Draw Accurately

- 2 Use a ruler to draw the following lines. Start at the dot.
- a 7 cm
  - b 8 cm
  - c 11 cm
  - d 3 cm

eBook, D series: [Measurement, page 2](#)

Question 2 on this page provides practice in accurately drawing lines to a given length (in centimetres).

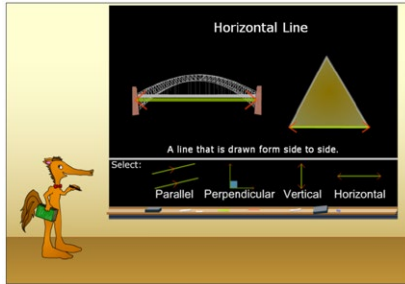




# Year 3 White Rose Maths (WRM) Summer Scheme of Learning, 2018

Mathletics

## Small step: Horizontal and Vertical Small step: Parallel and Perpendicular



Topic: **Properties of Shapes**

Activity: **What Line am I?**

Pupils identify whether the lines indicated on a 2D shape are parallel, perpendicular, horizontal or vertical.

Lines and angles – vertical, horizontal and diagonal lines

Vertical lines go straight up and down. Horizontal lines go straight across. Diagonal lines go on a slant.

1  any vertical necks.  any horizontal necks.  any diagonal necks.

eBook, D series: **Geometry, pages 1–2**

The concepts of horizontal, vertical and diagonal lines are explained. Pupils then complete exercises where they recognise the types of lines and draw them.

Lines and angles – parallel lines

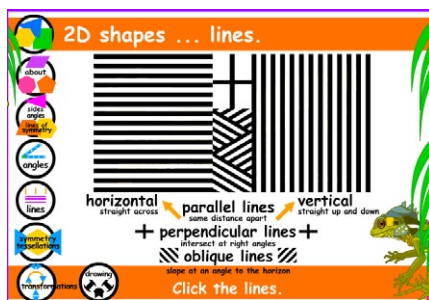
Parallel lines are always the same distance from each other and can never meet. They can be any length and go in any direction. Curves can also run parallel to each other.

1 Draw lines or curves parallel to each of these.

eBook, D series: **Geometry, pages 3–4**

On page 3, parallel lines are illustrated. Pupils then draw parallel lines next to the lines that are shown. They draw straight and curved parallel lines before identifying parallel lines in a range of 2D shapes.

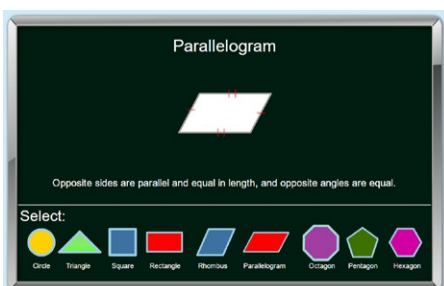
On page 4, perpendicular lines are explained and illustrated. Pupils identify perpendicular lines and parallel lines in exercises.



Rainforest Maths – Level D – 2D Shape – lines

This interactive shows horizontal and vertical lines, along with parallel and perpendicular lines. Pupils can click on the lines to reveal a picture.

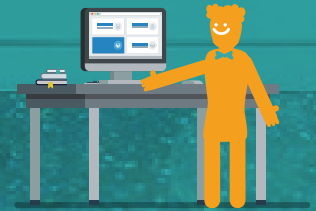
## Small step: Recognise and Describe 2D Shapes



Topic: **Properties of Shapes**

Activity: **Collect More Shapes**

Pupils identify 2D shapes by the number and nature of sides and angles, including circles, squares, rectangles, triangles, trapeziums, rhombuses, parallelograms, pentagons, hexagons and octagons.



Investigating 2D shapes – properties of shapes

Let's look more closely at hexagons, pentagons and octagons.

A pentagon is a shape with 5 sides.  
"Penta" means 5.  
A regular pentagon has 5 equal sides and 5 equal angles.

A hexagon is a shape with 6 sides.  
"Hexa" means 6.  
A regular hexagon has 6 equal sides and 6 equal angles.

An octagon is a shape with 8 sides.  
"Octa" means 8.  
A regular octagon has 8 equal sides and 8 equal angles.

eBook, D series: **Geometry**, pages 9–12

Pupils explore 2D shapes, recognising and describing the properties of both regular and irregular shapes including circle, triangle, square, rectangle, pentagon, hexagon, octagon, quadrilateral, rhombus, trapezium and parallelograms.

Number of sides	Name	Properties
3	triangle	3 sides, 3 angles
4	quadrilateral	4 sides, 4 angles
5	pentagon	5 sides, 5 angles
6	hexagon	6 sides, 6 angles
7	heptagon	7 sides, 7 angles
8	octagon	8 sides, 8 angles
9	nonagon	9 sides, 9 angles
10	decagon	10 sides, 10 angles

pentagon (regular)  
5 equal sides  
5 equal angles of 108°  
5 lines of symmetry

Rainforest Maths – Level D – 2D Shapes

This page contains a comprehensive list of 2D shapes to explore. Clicking on the image opens a small screen with further details of the properties of the shapes. Both regular and irregular shapes are explained. Pupils can click on the 'Circle, parts of circles' tab to explore 2D shapes with curved sides.

Small step: Recognise and Describe 3D Shapes

Cylinder  
Real life example  
Candle

Base is a circle  
Curved surface

Select:

Cone Pyramid Cylinder Sphere Prism

Topic: **Properties of Shapes**  
Activity: **Collect the Objects**

Pupils recognise and select the correct 3D shapes given the name of the 3D shape. Pupils need to recognise a prism, cone, pyramid, sphere and cylinder. The support area identifies some of the properties of the shapes, such as the 2D base shape or whether it has curved or flat surfaces.

Prisms have the same sized cross-section throughout.

Click the type and then the shape.

Pyramids triangular prism Prisms

Select:

Topic: **Properties of Shapes**  
Activity: **Faces, Edges and Vertices**

Pupils identify the number of faces, edges and vertices on a prism or pyramid.

Other related activities in this topic are:

Activity: **Count the Edges**  
Activity: **Count the Faces**  
Activity: **How many Vertices?**

Investigating 3D shapes – properties of shapes

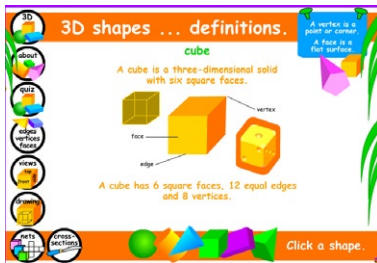
In this topic, we are looking at the properties of 3D shapes.

1 Match the label to each 3D shape by connecting them with a line.

cube  
cylinder  
cone  
sphere  
triangular prism  
square-based pyramid  
rectangular prism  
hexagonal prism

eBook, D series: **Geometry**, pages 19–23

Pupils explore the properties and cross sections of 3D shapes, including cubes, cylinders, spheres, cuboids, prisms and pyramids. They recognise and label features including vertex, faces and edges.



### Rainforest Maths — Level D — 3D shapes

Click on a 3D shape in the bottom banner to see an illustration of the 3D shape, labelled with details of the shape's properties.

Pupils can select the tab, 'Edges, vertices and faces,' to explore 3D shapes and complete tables of properties.

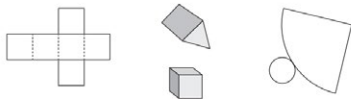
### Small step: Make 3D Shapes

Investigating 3D shapes – nets

If we were to cut out a cardboard cube along the edges and flatten it, it would be a net.



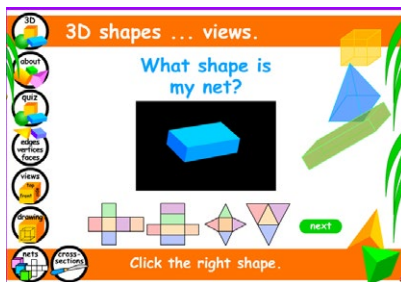
1 Draw a line to match these 3D shapes with their nets below:



### eBook, D series: Geometry, pages 24–26

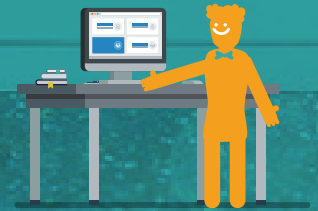
Pupils identify the nets from which 3D shapes can be created.

Page 26 is a reasoning problem where pupils study a net and visualise how it would look if constructed into a 3D shape.



### Rainforest Maths — Level D — 3D shapes

Pupils are initially shown nets which they can click on and see them fold up into their related 3D shapes. In the next section, pupils identify the net from which the 3D shape is created.

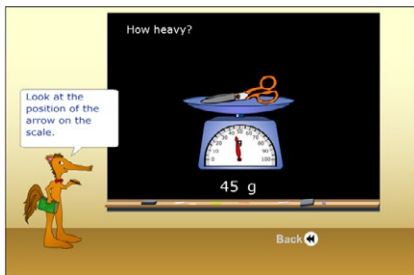


Examples of alignment to Mathletics

Block 4 (Weeks 9–11) Measurement: Mass & Capacity

National Curriculum Objectives	WRM Small Steps
<p>▶ Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	<ul style="list-style-type: none"> <li>▶ Measure Mass (1)</li> <li>▶ Measure Mass (2)</li> <li>▶ Compare Mass</li> <li>▶ Add &amp; Subtract Mass</li> <li>▶ Measure Capacity (1)</li> <li>▶ Measure Capacity (2)</li> <li>▶ Compare Capacities</li> <li>▶ Add &amp; Subtract Capacities</li> </ul>

Small step: Measure Mass (1)

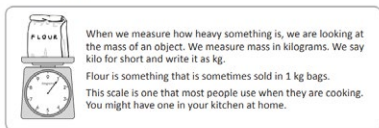


Topic: Mass and Capacity

Activity: *How Heavy is it?*

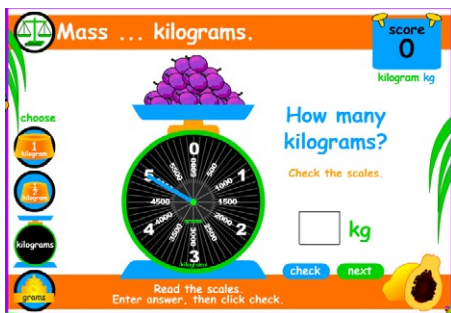
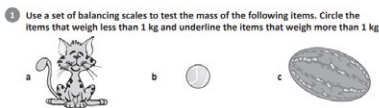
In this activity pupils move an object onto the scale to measure its mass (up to 100 grams). The scale is in multiples of ten, however pupils must also read measurements to the nearest 5 grams.

Mass – kilograms



eBook, D series: Measurement, page 10

The concept of measuring the weight of an object as mass and using the units kilogram and gram is introduced. Pupils use measuring scales to find the mass of a range of objects.

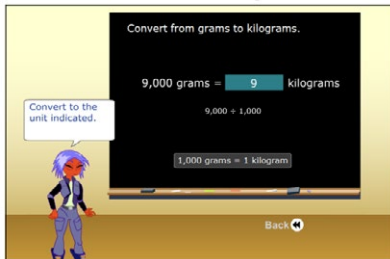


Rainforest Maths – Level D – Mass – kilograms

Using the illustrations of balance scales, pupils identify whether objects weigh more than or less than a kilogram and ½ kilogram.

Pupils then use the scales to read the mass and enter the number of kilograms (whole numbers only).

### Small step: Measure Mass (2)



Topic: **Mass and Capacity**

Activity: **Grams and Kilograms Conversion**

Pupils use the relationship between grams and kilograms to convert from one unit to the other. All conversions are to or from whole kilograms.

#### Mass – grams

We use grams to measure items that are less than 1 kilogram. We use g for grams.  
1 kilogram = 1,000 grams       $\frac{1}{2}$  kilogram = 500 grams

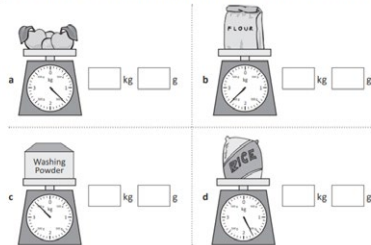
1 Write each mass in grams:

- a seventy five grams       b eighty two grams   
c five hundred grams       d one thousand grams   
e Ring the amount that is the same as 1 kilogram.  
f Underline the amount that is the same as half a kilogram.

2 Which unit of mass would you use for each item – kilogram (kg) or gram (g)?



2 These items weigh more than 1 kg. Write the mass of each in kilograms and grams:



eBook, D series: **Measurement, page 12**

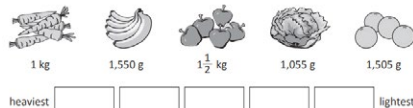
Pupils are introduced to the relationship between grams and kilograms and are asked to identify which unit of measurement would be more appropriate for a particular object.

eBook, E series: **Volume, Capacity and Mass, page 10**

Pupils read and record weights in mixed units of kilograms and grams.

### Small step: Compare Mass

5 When Kim went to the supermarket, she bought carrots, bananas, apples, oranges and lettuce. Can you order the fruit and vegetables from heaviest to lightest?

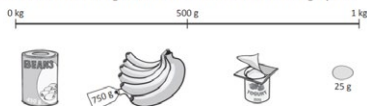


eBook, D series: **Measurement, page 11**

Pupils compare mass written in kilograms with mass in grams and convert from kilograms to grams.

In exercise 6, they apply this learning to order everyday objects from the heaviest to the lightest.

6 If the length of this line represents 1 kg and the marker in the middle is 500 g, where would these items go? Draw a line to connect them to the right place:

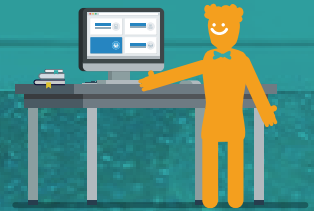


7 Decide whether the combined mass of the items pictured above weighs more or less than 1 kg.

- a baked beans and bananas      more or less  
b tub of yogurt and an egg      more or less  
c bananas and the yogurt      more or less  
d egg and bananas      more or less

eBook, D series: **Measurement, page 12**

Pupils order mass written in grams and compare masses to 1 kilogram.



Small step: Add & Subtract Mass

Mass – word problems

1 Solve these mass word problems:

a Samira bought 6 apples from the greengrocer. Each had a mass of 50 g. How much did they weigh altogether?



b I baked 3 cakes for the school cake sale. The chocolate cake had a mass of  $\frac{2}{3}$  kg, the walnut cake weighed 300 g and the carrot cake was 350 g. What did all 3 cakes weigh together?

REMEMBER

c Aaliyah weighs 25 kg, which is 3 kg 200 g more than her little brother. How much does her brother weigh?

eBook, D series: Measurement, pages 14 and 16

On page 14, pupils use addition and subtraction to solve problems relating to mass, placing the concept in a real-life context.

Page 16 asks pupils to use addition to total the weights on one side of a balance scale, and then use subtraction to work out the unidentified mass on the other side of the scale.

2 Write the total for each of these combinations of weights:

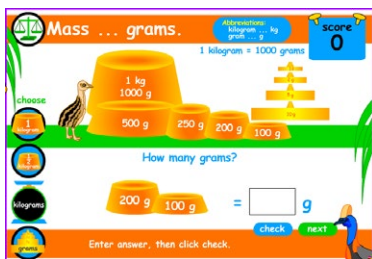
- a  $500\text{ g} + 250\text{ g} + 100\text{ g} + 100\text{ g} =$
- b  $100\text{ g} + 500\text{ g} + 1\text{ kg} + 100\text{ g} =$
- c  $250\text{ g} + 100\text{ g} + 250\text{ g} =$
- d  $250\text{ g} + 100\text{ g} + 500\text{ g} + 1\text{ kg} =$

3 Gather these objects and weigh them using a set of kitchen scales. Complete the table and put a ring around the combination of weights that each object is closest to.

Object	Mass of object	Combination of weights closest to
a A brick		1 kg 500 g 250 g 100 g
b A bottle of tomato sauce		1 kg 500 g 250 g 100 g
c A can of baked beans		1 kg 500 g 250 g 100 g
d A shoe		1 kg 500 g 250 g 100 g
e Two large potatoes		1 kg 500 g 250 g 100 g

eBook, E series: Measurement, page 9

Pupils measure and add weights given in both grams and kilograms.



Rainforest Maths – Level D – Mass – grams

A range of gram weights is presented to students highlighting that there are 1000 grams in 1 kilogram. Pupils add the weights together and enter the number of grams.

Small step: Measure Capacity (1)

Volume and capacity – litres

Capacity refers to how much liquid a container can hold. Capacity can be measured in litres. We use the symbol 'l'. Next time you go to the supermarket, look out for all the different items that have 'l' for litres on the label. For example, fruit juice is often sold in litres.



1 Here is a selection of containers. Work out how many times each container can be filled from a 1 litre carton, such as a fruit juice carton.

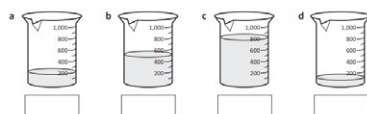


eBook, D series: Measurement, page 17

Pupils are introduced to the concept of measuring volume and capacity in litres. In practical exercises pupils explore how many times they can fill smaller containers by pouring from a litre carton.

Volume and capacity – millilitres

2 Label each of these containers with the amount of water in each:



3 Answer the questions based on the amount of water in the containers above.

a Which container has the most liquid in it?

eBook, D series: Measurement, page 19

Pupils are introduced to the concept of measuring a smaller volume or capacity in millilitres. They are asked to label how much water is in each jug. Their knowledge is consolidated by asking them to then mark specific levels on a jug.

### Rainforest Maths – Level D – Capacity – mL

When pupils select the 'mL' activity, they click on the grey cloud and see the measuring container begin to fill with rain. Pupils read the scale and enter the number of millilitres in the beaker.

## Small step: Measure Capacity (2)

How Full?

Topic: Mass and Capacity

Activity: *Using a Litre*

Pupils read a scale with units in either millilitres or litres and relate the volume to simple fractions of a litre.

### Rainforest Maths – Level D – Capacity – one litre

When pupils select the 'one litre' activity, they click on the smaller container measured in millilitres to see how many smaller containers it takes to fill the one litre jug.

In the 'half litre' activity, pupils click on the jug to see how many containers measured in ml it will fill.

## Small step: Compare Capacities

**Which holds the most?** investigate

Getting ready → How much do you know about capacity? Is it easy to tell whether one container will hold more or less liquid than another? Can you measure capacity accurately?

For this investigation you need to work in a pair or a small group. Gather together 5 different containers. You will also need one measuring jug marked in millilitres.

Your task is to order the containers by capacity and to then accurately measure and record their capacity.

eBook, D series: [Measurement, page 21](#)

In this practical group activity, pupils order 5 different containers by measuring their capacity, using a measuring jug to find the capacity of each container in litres and millilitres.

## Small step: Add & Subtract Capacities

Mass – word problems

1 Solve these mass word problems:

- a Samira bought 6 apples from the greengrocer. Each had a mass of 50 g.

How much did they weigh altogether?

- b I baked 3 cakes for the school cake sale. The chocolate cake had a mass of  $\frac{1}{3}$  kg, the walnut cake weighed 300 g and the carrot cake was 350 g.

What did all 3 cakes weigh together?

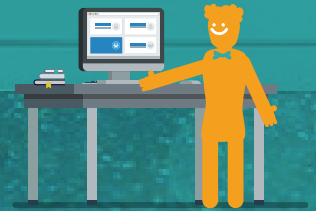
- c Aaliyah weighs 25 kg, which is 3 kg 200 g more than her little brother.

How much does her brother weigh?



eBook, D series: [Measurement, page 20](#)

These word problems put volume and capacity and the use of litres and millilitres as units of measurement into real-life contexts. Pupils need to decide whether to use addition or subtraction to solve each problem.



### Rainforest Maths — Level D — Capacity — litres, millilitres

When pupils select the 'L / ml' activity, they are shown a range of containers, labelled with their capacities in litres and millilitres. The questions ask pupils to work out the total capacity of several containers.

## Live Mathletics

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!







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3P Learning

For more information about Mathletics,  
contact our friendly team.



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