Years 1/2

Mixed Age Schemes of Learning

White Rose Maths

Welcome

Welcome to the White Rose Maths' new, more detailed schemes of learning for 2017-18.

We have listened to your feedback and as a result of this, we have made some changes to the previous WRMH primary schemes. *We believe the new schemes are bigger, bolder and more detailed than before.*

White Rose Maths' new schemes still have the *same look and feel* as the old WRMH ones, but we have tried to provide more detailed guidance. We have worked with enthusiastic and passionate teachers from up and down the country, who are experts in their particular year group, to bring you additional guidance. *These schemes have been written for teachers, by teachers.*

We hope we can help make a difference to maths education in this country. *We all believe that every child can succeed in mathematics.* Thank you to everyone who has contributed to our work. It is only with your help that we can make a difference.

We hope that you find the new schemes of learning helpful. As always, if you or your school want support with any aspect of teaching maths please do not hesitate to get in touch

If you have any feedback on any part of our work, do not hesitate to get in touch. Follow us on Twitter and Facebook to keep up-to-date with all our latest announcements.

White Rose Maths Team
#MathsEveryoneCan

What's New?

This release of our schemes includes

- New overviews, with subtle changes being made to the timings and the order of topics.
- New small steps progression. These show our blocks broken down into smaller steps.
- Small steps guidance. For each small step we provide some brief guidance to help teachers understand the key discussion and teaching points. This guidance has been written for teachers, by teachers.
- A more integrated approach to fluency, reasoning and problem solving.
- Answers to all the problems in our new scheme.
- This year there will also be updated assessments.
- We are also working with Diagnostic Questions to provide questions for every single objective of the National Curriculum.

Teaching notes and examples

Recognise Equal Groups

Notes and Guidance

At this stage, children are describing equal groups using stem sentences to support them. It is important that children know which groups are equal and which are unequal.   The addition or multiplication symbol is not used within this small step but this language will support them in understanding repeated addition and multiplication. The examples included, refer to the multiplication facts Y2 children need to know.

Mathematical Talk

Varied Fluency

1. Are these equal groups? How do you know?
   (a)
   (b)

2. Complete the stem sentence

Improved ordering and timing

	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 (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtraction (within 20)			Number: Place Value (within 50) (Multiples of 2, 5 and 10 to be included)			Measurement: Length and Height		Measurement: Weight and Volume			Consolidation
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5...)			Number:			etry: n and ion				(within 10)	

Small Steps Guidance

Overview

Small Steps

- Sort objects
- Count objects
- Represent objects
- Count, read and write forwards from any number 0 to 10
- Count, read and writing backwards from any number 0 to 10
- Count one more
- Count one less
- One to one correspondence to start to compare groups
- Compare groups using language such as equal, more/greater, less/fewer
- Introduce = , > and < symbols
- Compare numbers
- Order groups of objects
- Order numbers
- Ordinal numbers (1st, 2nd, 3rd …)
- The number line

NC Objectives

Count to ten, forwards and backwards, beginning with 0 or 1, or from any given number.

Count, read and write numbers to 10 in numerals and words.

Given a number, identify one more or one less.

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.

Meet the Team

The schemes have been put together by a wide group of passionate and enthusiastic classroom practitioners. The development of the schemes has been led by the following people who work across Trinity MAT.

Kelsey Brown

Beth Smith

Caroline Hamilton

Stephen Monaghan

Julie Matthews

Jenny Lewis

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Special Thanks

The WRM Team would like to say a huge thank you to the following people who came from all over the country to contribute their ideas and experience. We could not have done it without you.

Year 2 Team

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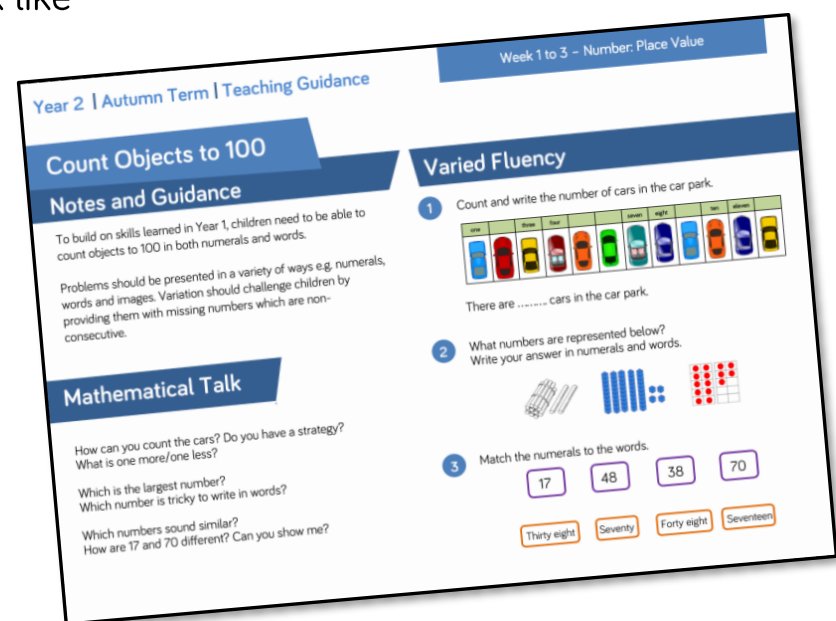Emma Lucas

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How to use the Small Steps

We are regularly asked how it is possible to spend so long on particular blocks of content and National Curriculum objectives. We know that breaking the curriculum down into small manageable steps should help children understand concepts better. Too often, we have noticed that teachers will try and cover too many concepts at once and this can lead to cognitive overload. In our opinion, it is better to follow a small steps approach.

As a result, for each block of content we have provided a "Small Step" breakdown. *We recommend that the steps are taught separately* and would encourage teachers to spend more time on particular steps if they feel it is necessary. Flexibility has been built into the scheme to allow this to happen.

Teaching Notes

Alongside the small steps breakdown, we have provided teachers with some brief notes and guidance to help enhance their teaching of the topic. The "Mathematical Talk" section provides questions to encourage mathematical thinking and reasoning, to dig deeper into concepts.

We have also continued to provide guidance on what varied fluency, reasoning and problem solving should look like

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Assessments

Alongside these overviews, our aim is to provide an assessment for each term's plan. Each assessment will be made up of two parts:
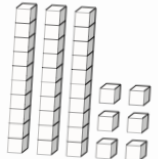
Part 1: Fluency based arithmetic practice
Part 2: Reasoning and problem solving based questions

Teachers can use these assessments to determine gaps in children's knowledge and use them to plan support and intervention strategies.

The assessments have been designed with new KS1 and KS2 SATs in mind. New assessments will be released over the course of next year.

For each assessment we will aim to provide a summary spreadsheet so that schools can analyse their own data. We hope to work with Mathematics Mastery to allow schools to make comparisons against other schools. Keep a look out for information next year.

16 Here are some cubes.

2 boys receive 8 cubes each.

The rest of the cubes are shared equally between 4 girls.

How many cubes does each girl receive?

Show your method

12 Marla spends $\frac{2}{7}$ of her weekly wage on a £120 bag.

£120

How much does she earn in a week?

Show your method

2 marks

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Teaching for Mastery

These overviews are designed to support a mastery approach to teaching and learning and have been designed to support the aims and objectives of the new National Curriculum.

The overviews:

- have number at their heart. A large proportion of time is spent reinforcing number to build competency
- ensure teachers stay in the required key stage and support the ideal of depth before breadth.
- ensure students have the opportunity to stay together as they work through the schemes as a whole group
- provide plenty of opportunities to build reasoning and problem solving elements into the curriculum.

For more guidance on teaching for mastery, visit the NCETM website

https://www.ncetm.org.uk/resources/47230

Concrete – Pictorial - Abstract

As an organisation we believe that all children, when introduced to a new concept, should have the opportunity to build competency by taking this approach.

Concrete – children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – alongside this children should use pictorial representations. These representations can then be used to help reason and solve problems.

Abstract – both concrete and pictorial representations should support children's understanding of abstract methods.

We have produced a CPD unit for teachers in schools;

https://www.tes.com/teaching-resource/the-importance-of-concrete-professional-development-11476476

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Additional Materials

In addition to our schemes and assessments there are a range of other materials that you may find useful.

KS1 and KS2 Problem Solving Questions

For the last two years WRMH have provided a range of KS1 and KS2 problem solving questions in the run up to SATs. There are over 150 questions on a variety of different topics and year groups.

Other schemes of learning

As well as having schemes for Y1-Y6 we developed a range of other schemes of learning

- Schemes for reception
- Mixed aged schemes
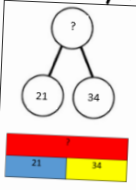- Year 7 – 9 schemes for secondary

Calculation policy/guidance

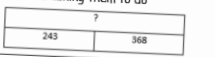We also have our calculation policy for the four operations. This can be found on our TES page.

Our Partnerships

tes
www.tes.com

Over the last 12 months we have developed a partnership with tes. Working with Mathematics Mastery we have created a detailed breakdown of the National Curriculum. Watch this space for exciting developments.
https://www.tes.com/teaching-resources/teaching-for-mastery-in-primary-maths

The diagram represents $\frac{2}{3}$ of the cakes in a shop.

How many cakes are in the shop in total?

A   8
B   36
C   16
D   18

Diagnostic Questions
www.diagnosticquestions.co.uk

From September 2017, we have written two sets of questions for every National Curriculum objective from Y1 to Y6. These are hosted free of charge on @mrbartonmaths Diagnostic Questions website.

Training

White Rose Maths offers paid for training to schools regionally, nationally and internationally. Over the last year we have delivered training to over 150 schools and have had over 1,000 people attend our face to face training.

As part of our 'Jigsaw' package we offer the following twilight courses:

- CPA
- Bar Modelling
- Reasoning and Problem Solving
- Mathematical Talk and Questioning
- Variation and Depth

If you would like any more information about our courses then email the team.

License Partners

We also work with a growing number of Teaching Schools around the country to deliver our training. All of our providers have been specially selected and they are as passionate about improving maths education as we are. All our providers offer our twilight bar modelling training course. If you want to see who your local provider is or would like to become a license partner then please do get in touch.

Bar Modelling Deeper Learning Event

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FAQs

We have bought one of the new textbook schemes, can we still use these curriculum plans?

Many schools are starting to make use of mastery textbooks used in places like Singapore and China. The schemes have been designed to work alongside these textbooks. We recommend that you follow the textbook order and use our materials for additional support and guidance.

If we spend so much time on number work, how can we cover the rest of the curriculum?

Children who have an excellent grasp of number make better mathematicians. Spending longer on mastering key topics will build a child's confidence and help secure understanding. This should mean that less time will need to be spent on other topics.

In addition, schools that have been using these schemes already have used other subjects and topic time to teach and consolidate other areas of the mathematics curriculum.

Should I teach one small step per lesson?

Each small step should be seen as a separate concept that needs teaching. You may find that you need to spend more time on particular concepts. Flexibility has been built into the curriculum model to allow this to happen. This may involve spending more than one lesson on a small step, depending on your class' understanding.

Will you be providing grade boundaries for your assessments?

No, we will not be releasing guidance on grade boundaries. We suggest the assessments are used to find out what children can and cannot do, which will help inform future planning.

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FAQs continued ...

How do I use the fluency, reasoning and problem solving questions?

The questions are designed to be used by the teacher to help them understand the key teaching points that need to be covered. They should be used as inspiration and ideas to help teachers plan carefully structured lessons.

What is same day intervention?

A growing number of schools are doing different types of same day intervention. Some schools are splitting a lesson into two parts and other schools are working with small groups of students at other times during the day. The common goal is to keep up, rather than catch up.

#MathsEveryoneCan

At White Rose Maths we believe that everyone can succeed in Maths. We encourage anyone who uses our schemes to share in this belief and do all that they can to convince the children they teach that this is the case.

How do I reinforce what children already know if I don't teach the topic again?

The scheme has been designed to give sufficient time for teachers to explore concepts in depth, rather than covering it superficially and then coming back to it several times.

We understand though that schools will rightly want to ensure that students revisit concepts and ensure fluency in number.

The schemes interleave prior content in new concepts. For example when children look at measurement we recommend that there are lots of questions that practice the four operations and fractions. This helps children make links between topics and understand them more deeply.

We also recommend that schools look to reinforce number fluency throughout the year. This could be done as mental and oral starters or in additional maths time during the day.

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Year 1 /2– 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				Geometry: Shape		Measurement: Money	
Spring	Number: Multiplication and Division (Y1: Place Value to 50 included)				Number: Fractions			Measurement: Length and Height		Measurement: Mass, Capacity and Temperature		Consolidation
Summer	Year 1: Place Value within 100 Year 2: Statistics		Geometry: Position and Direction		Problem solving and efficient methods		Measurement: Time			Investigations		Consolidation

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Year 1/2 – Autumn Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number: Place Value Count to **twenty**, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to **20** in numerals and words. **Read and write numbers to at least 100 in numerals and in words.** **Recognise the place value of each digit in a two digit number (tens, ones)** Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. **Identify, represent and estimate numbers using different representations including the number line.** **Compare and order numbers from 0 up to 100; use <, > and = signs.** **Use place value and number facts to solve problems.**				Number: Addition and Subtraction Represent and use number bonds and related subtraction facts within 20 **Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.** Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Add and subtract one digit numbers to 20, including zero. **Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers.** Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems. **Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods.** **Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.** **Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.**				Geometry: Shape Recognise and name common 2-D shapes, including: (for example, rectangles (including squares), circles and triangles) **Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.** Recognise and name common 3-D shapes, including: (for example, cuboids (including cubes), pyramids and spheres.) **Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.** **Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.]** **Compare and sort common 2-D and 3-D shapes and everyday objects.**		Measurement: Money Recognise and know the value of different denominations of coins and notes. **Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.** **Find different combinations of coins that equal the same amounts of money.** **Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.**	

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Year 1/2– Spring Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number: Place Value and Multiplication and Division Count to **50** forwards and backwards, beginning with 0 or 1, or from any number. Count, read and write numbers to **50** in numerals. Given a number, identify one more or one less. Count in multiples of twos, fives and tens. **Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward.** **Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.** Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. **Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.** **Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.** **Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.**				Number: Fractions Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. **Recognise, find, name and write fractions** $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}$ **and** $\frac{3}{4}$ **of a length, shape, set of objects or quantity.** **Write simple fractions for example,** $\frac{1}{2}$ **of 6 = 3 and recognise the equivalence of** $\frac{2}{4}$ **and** $\frac{1}{2}$**.**			Measurement: Length and Height Measure and begin to record lengths and heights. **Choose and use appropriate standard units to estimate and measure** <u>length/height in any direction (m/cm);</u> mass (kg/g); temperature (°C); capacity (litres/ml) **to the nearest appropriate unit,** <u>using rulers</u>, scales, thermometers and measuring vessels Compare, describe and solve practical problems for: lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) <u>**Compare and order lengths,**</u> mass, volume/capacity **and** <u>record the results using >, < and =</u>		Measurement: Weight and Volume Measure and begin to record mass/weight, capacity and volume. <u>**Choose and use appropriate standard units to estimate and measure** length/height in any direction (m/cm); **mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit,** using rulers**, scales, thermometers and measuring vessels**</u> Compare, describe and solve practical problems for mass/weight: [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] <u>**Compare and order** lengths, mass, **volume/capacity and** record the results using >, < and =</u>		Consolidation

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Year 1/2– Summer Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number: Place Value Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals. Given a number, identify one more and one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than, most, least. Statistics **Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.** **Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.** **Ask and answer questions about totalling and comparing categorical data.**		Geometry: Position and Direction Describe position, direction and movement, including whole, half, quarter and three quarter turns **Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).** Order and arrange combinations of mathematical objects in patterns and sequences		Problem Solving and Efficient Methods		Measurement: Time Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening. Recognise and use language relating to dates, including days of the week, weeks, months and years. **Know the number of minutes in an hour and the number of hours in a day.** Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. **Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.** Compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] **Compare and sequence intervals of time.** **Measure and begin to record time (hours, minutes, seconds)**			Investigations	Consolidation	