Year 2

Mastery Overview
Term by Term

The Mastery Pathway

MathsHUBS
White Rose

Year 2

Overview

One of the most frequent request we get as a Maths Hub is for a suggested long term curriculum plan for mathematics in primary. We have listened to what teachers need and the following mastery overviews have been developed by primary practioners in conjunction with the White Rose Maths Hub to provide a curriculum plan that will support 'Teaching for Mastery'.

There is a termly plan for each year group from Year 1 to Year 6; each term is split into twelve weeks. You will see from the overviews that a significant amount of time is devoted to developing key number concepts each year. This is to build their fluency as number sense will affect their success in other areas of mathematics. Students who are successful with number are much more confident mathematicians.

We hope you find them useful. If you have any comments about this document or have any ideas please do get in touch.

The White Rose Maths Hub Team

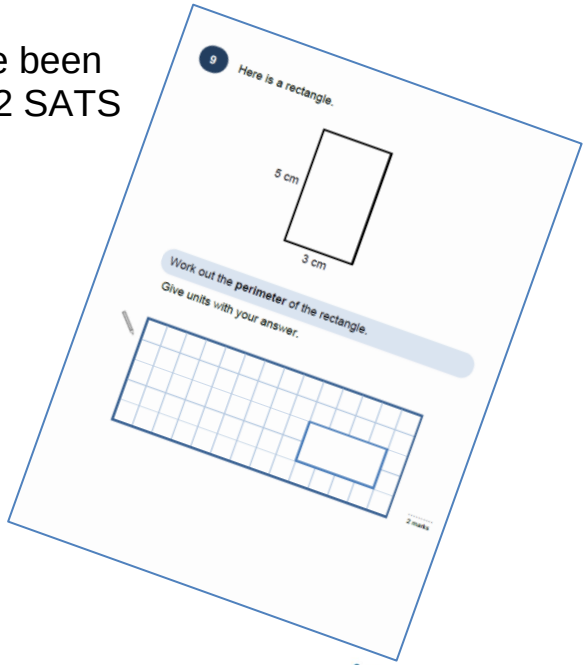
Assessment

Alongside these curriculum overviews, our aim is also to provide a free assessment for each term's plan. Each assessment will be made up of two parts:

Part 1: Fluency based arithmetic practice
Part 2: Reasoning based questions

You can use these assessments to determine gaps in your students' knowledge and use them to plan support and intervention strategies.

The assessments have been designed with new KS2 SATS in mind. All of the assessments will be ready by 30 November 2015.



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Year 2

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;

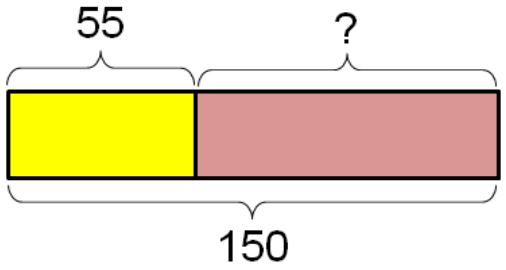
- have number at their heart. A large proportion of time is spent reinforcing number to build competency
- ensure teachers stay in the required key stage and support the ideal of depth before breadth.
- ensure students have the opportunity to stay together as they work through the schemes as a whole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

Concrete – Pictorial – Abstract

As a hub we believe that all students, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach.

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

Pictorial – students should then build on this concrete approach by using pictorial representations. These representations can then be used to reason and solve problems.



An example of a bar modelling diagram used to solve problems.

Abstract – with the foundations firmly laid, students should be able to move to an abstract approach using numbers and key concepts with confidence.

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Frequently Asked Questions

We have bought one of the new Singapore textbooks. Can we use these curriculum plans?

Many schools are starting to make use of a mastery textbook used in Singapore and China, the schemes have been designed to work alongside these textbooks. There are some variations in sequencing, but this should not cause a large number of issues

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

Students who have an excellent grasp of number make better mathematicians. Spending longer on mastering key topics will build a student'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.

My students have completed the assessment but they have not done well.

This is your call as a school, however our recommendation is that you would spend some time with the whole group focussing on the areas of the curriculum that they don't appear to have grasped. If a couple of students have done well then these could be given rich tasks and deeper problems to build an even deeper understanding.

Can we really move straight to this curriculum plan if our students already have so many gaps in knowledge?

The simple answer is yes. You might have to pick the correct starting point for your groups. This might not be in the relevant year group and you may have to do some consolidation work before.

These schemes work incredibly well if they are introduced from Year 1 and continued into Year 2, then into Year 3 and so on.

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Detailed Schemes

To complement these yearly overviews we are working on termly schemes of learning that provide:

- More details on how to teach particular aspects of the curriculum
- Fluency, reasoning and problem solving ideas for each topic.

These will gradually become available over this term. Please keep checking back for updates.

In addition to this the NCETM have developed a fantastic series of problems, tasks and activities that can be used to support 'Teaching for Mastery'. They have been written by experts in mathematics.

It will also give you a detailed idea of what it means to take a mastery approach across your school. Information can be found on the link below.

https://www.ncetm.org.uk/resources/46689

Everyone Can Succeed

As a Maths Hub we believe that all students can succeed in mathematics. We don't believe that there are individuals who can do maths and those that can't. A positive teacher mindset and strong subject knowledge are key to student success in mathematics.

More Information

If you would like more information on 'Teaching for Mastery' you can contact the White Rose Maths Hub at mathshub@trinityacademyhalifax.org

We are offering courses on:

- Bar modelling
- Teaching for Mastery
- Year group subject specialism intensive courses – become a maths expert.

Our monthly newsletter also contains the latest initiatives we are involved with. We are looking to improve maths across our area and on a wider scale by working with the other Maths Hubs across the country.

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Year 2 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 Mass		Graphs	Multiplication and Division		
Spring	Measurement: Money			Geometry: Properties of Shape			Number: Fractions					
Summer	Measurement: Time		Measurement: Capacity, Volume and Temperature				Post SATs Project Work					

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Term by Term Objectives

Year 2

Year group	2	Term	Autumn

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<u>Number – place value</u> Count in steps of 2, 3 and 5 from 0 and in tens from any number, forward and backward. Recognise the place value of each digit in a two digit number (tens, ones) Identify, represent and estimate numbers to 100 using different representations including the number line. Compare and order numbers from 0 up to 100; use <, > and = signs. Read and write numbers to at least 100 in numerals and words. Use place value and number facts to solve problems.		<u>Number – addition and subtraction</u> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. 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. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve 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.			<u>Measurement: length and mass</u> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) and mass (kg/g) to the nearest appropriate unit, using rulers and scales. Compare and order length and mass and record the results using >, < and =.		<u>Graphs</u> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. Ask+ 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	<u>Multiplication and Division</u> Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts. Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.		

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Term by Term Objectives

Year 2

Year group	2	Term	Spring

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<u>Measurement: Money</u> Recognise and use symbols of 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.			<u>Geometry- properties of shape</u> Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. Identify 2D shapes on the surface of 3D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.] Compare and sort common 2D and 3D shapes and everyday objects. Order and arrange combinations of mathematical objects in patterns and sequences.			<u>Number – fractions</u> 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, ½ of 6 = 3 Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.			Time at the beginning or end of the term for consolidation, gap filling, seasonal activities, assessments, etc.	

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Term by Term Objectives

Year 2

Year group	2	Term	Summer

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<u>Measurement: Time</u> 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. Know the number of minutes in an hour and the number of hours in a day. Compare and sequence intervals of time.		<u>Measurement: Capacity, volume and temperature</u> Choose and use appropriate standard units to estimate and measure capacity (litres/ml) and temperature (^{o}C) to the nearest appropriate unit, using thermometers and measuring vessels. Compare and order volume/capacity and record the results using >, < and =.		Consolidation and gap filling in preparation for SATS			End of Term Project				

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