Year 2

Mastery Overview
Summer

MathsHUBS White Rose

SOL Overview

As well as providing term by term overviews for the new National Curriculum, as a Maths Hub we are aiming to support primary schools by providing more detailed Schemes of Learning, which help teachers plan lessons on a day to day basis.

The following schemes provide exemplification for each of the objectives in our new term by term overviews, which are linked to the new National Curriculum. The schemes are broken down into fluency, reasoning and problem solving, which are the key aims of the curriculum. Each objective has with it examples of key questions, activities and resources that you can use in your classroom. These can be used in tandem with the mastery assessment materials that the NCETM have recently produced.

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

Thank you for your continued support with all the work we are doing.

The White Rose Maths Hub Team

Assessment

Alongside these curriculum overviews, our aim is also 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 based questions

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

The autumn and spring assessments are now available.

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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:

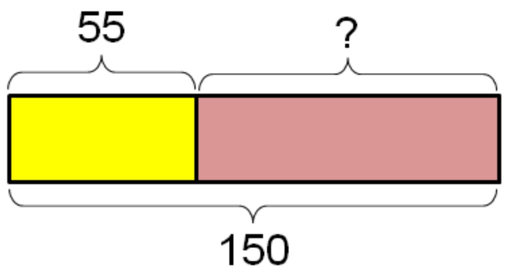
- have number at their heart. A large proportion of time is spent reinforcing number to build competency.
- ensure teachers stay in the required key stage and support the ideal of depth before breadth.
- ensure students have the opportunity to stay together as they work through the schemes as a whole group.
- provide plenty of 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 do not 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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Year 2

Mixed Year & Reception Planning

We have been working on mixed year and reception versions of our planning documentation and guidance. These have been created by teachers from across our region and wider. Working documents can be found in the Dropbox, although we hope that the final documents will be available later on in the summer term. Please contact the Hub if you would like any more information.

Problem Solving

As a Hub we have produced a series of problems for KS1 and KS2. These can be found here.
http://tinyurl.com/zfeq8gs

We are hoping to release more in September. In addition to the schemes attached the NCETM have developed a fantastic series of problems, tasks and activities that can be used to support 'Teaching for Mastery'.

It will also give you a detailed idea of what it means to take a mastery approach across your school.
https://www.ncetm.org.uk/resources/46689

Everyone Can Succeed

As a Maths Hub we believe that all students can succeed in mathematics. We do not believe that there are individuals who can do maths and those that cannot. 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 other Maths Hubs across the country.

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Year 2 Overview

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Term by Term Objectives

Year 2

Year Group	Y2	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
Measurement 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 & the number of hours in a day. Compare and sequence intervals of time.		Measurement Choose and use appropriate standard units to estimate and measure capacity (l/ml) and temperature (°C) to the nearest appropriate unit, using thermometers and measuring vessels. Compare and order volume/capacity & record the results using >, < and =.		Post SATs Project Work							

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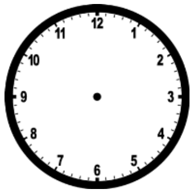
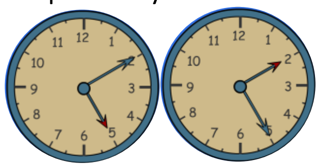
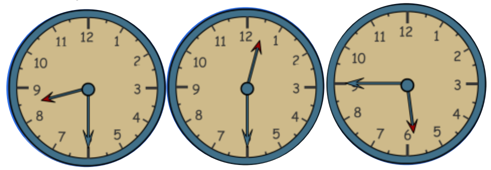
	Year 2 Summer			
	National Curriculum Statement	All Students		
		Fluency	Reasoning	Problem Solving
Measurement	Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	• Lily starts school at 8:45am. She arrives 10 minutes early. Show what time she arrived on the clock.  • What time is the clock showing?  • Complete the missing times. James wakes up at 6:50am. 15 minutes later, he eats his cereal. This takes him 5 minutes. It is now _____. Half an hour later the time is _____. This is when he arrives at work.	• At a supermarket, the workers take turns to have a break. All breaks start at either quarter past and quarter to and end at either quarter past or quarter to. What are the two lengths of break times? How do you know? • The big hand on the clock is pointing to the 8 and small hand is pointing to the 8. What time is it? How do you know? • Which clock is showing 10 past 5? Explain why. 	• Put these clocks in order  • Look at these 3 clocks. What might you be doing at these times in the day?  • Sammy starts her questions at 11:10 It takes her 5 minutes per question. She finishes at 11:55 How many questions did she complete?

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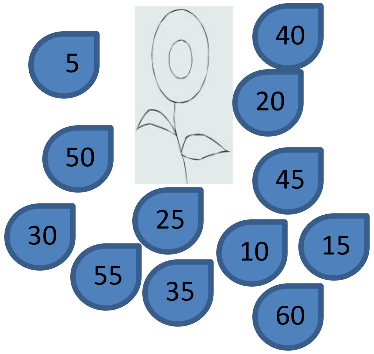
Measurement	Know the number of minutes in an hour & the number of hours in a day.	• The petals of the flower that shows how many minutes have passed the hour have fallen off. Can you put them back in the right order?  • Amie arrives to a party at 4:30pm. She leaves at 5:30pm. How long did she stay? Tell me in hours and then in minutes. • Tell me: The number of minutes in an hour. The number of hours in a day.	• Nick is looking at the amount of minutes in one hour and two hours. 1 hour = 60 minutes 2 hours = 120 minutes He says, “The amount of minutes are doubling each time. To find how many minutes are in 3 hours I will double 120 minutes.” Is he correct? • **True or false?** There are more minutes in the day than there are hours. Explain why. • Kim says “If you are looking at a clock and adding 3 hours on, the minutes do not change”. Is she correct? Prove it!	• Show all the different ways you can calculate how many hours are in 2 days. • Play pairs – create a set of cards with time facts. When two cards are turned over that equal the same length of time then that person wins those cards e.g. 24 hours 1 day Half a day 12 hours

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Measurement	Compare and sequence intervals of time.	• Which is greater? Half an hour | 45 minutes 60 minutes | 1 hour • Order these from the earliest time to the latest time: Half past 2 3 o'clock 1 o'clock Quarter to 3 • Andy worked from half past 10 until 2 o'clock. Kat worked from 3 o'clock till 6 o'clock. Who worked the shortest amount of time?	• Beth needs to be in Leeds for a film showing that starts at 4 o'clock. She can either: - Get the 3:20 bus that takes half an hour or - Get the 3:30 train that takes 30 minutes. Which should she take and why? • Kassie records the time every half an hour. Her sequence looks like this 11:15, 11:45, 12:15, 12:45, 1:15, 1:45 What do you notice? Can you explain why this happens? • Which is time is longer? 43 minutes or 10 minutes less than an hour. Explain how you know.	• Amee is planning her birthday. She wants to plan something to do from 9am to 5pm. Here are the things she wants to do: - visit the zoo (3 hours) - go to Pizza Hut (1 hour and a half) - Have breakfast (half an hour) - Play party games (1 hour) - Watch a film (2 hours) Create a timetable for Amee's day. Share and compare with a friend. • A football match kicks off at 1pm. Half time is 45 minutes later. Full time is 2:50pm. The first and second half are equal in length. How long was half time?

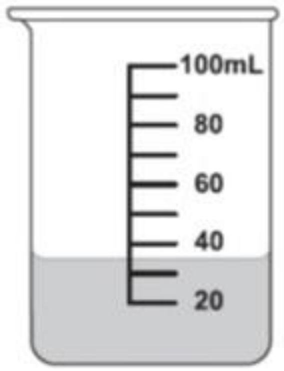
Term by Term Objectives

Year 2

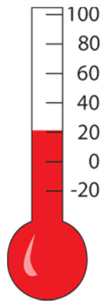
Measurement

Choose and use appropriate standard units to estimate and measure capacity (l/ml) and temperature (^{o}C) to the nearest appropriate unit, using thermometers and measuring vessels.

- How much water is in the container?



- What temperature is the classroom?



- Choose the appropriate unit to measure how much water is used in a shower.
  ml or l

- Class 2 were recording the temperatures of 2 classes at different times of the day.
  Two classrooms, in the same building, had a difference of 6˚c at 12 noon. Why might this be?

- **<u>Sometimes, always, never</u>**
  Liquid can be measured in millilitres.

- Sarah's 1L bucket has a hole in it. She needs exactly 1L to water the plants.
  She has a 250ml measuring jug.
  Can she use this?

- Below is a table of temperatures. Write a story about each place and what they will be doing at 1pm.
  Relate this to the temperature.

<u>City</u>	**<u>Temp (˚c) at 1pm</u>**
Leeds	14˚c
Barcelona	32˚c

- Gather different sized containers in width and height.
  Estimate how much is in each container.
  Record your results in the table below.

Container	Estimate	Actual

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Term by Term Objectives

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Measurement	Compare and order volume/capacity & record the results using >, < and =.	• Complete the sentences using the following symbols <, > or = 30ml 60ml 1L jug Two half litre jugs 52L 25L • Order the results from largest to smallest: 500ml, 750ml, 250ml, 1L • Who has more pop? Eric  "I have these 2 bottles."  Sasha  "I have a 750ml bottle."	• **<u>True or false?</u>** The taller a container is, the more liquid there is. Explain why you agree or disagree. • Work out these values: 40ml – 20ml = 20ml – 10ml = 10ml – 5ml = What do you notice about the answers? Why do you think this happening? • **<u>True or false?</u>** You can use both < and > if you are ordering 25ml and 30ml.	• Sahil, Marta & John have 700ml of pop between them. Sahil and John drink the same amount. Marta has 100ml more than Sahil and John. How much do they all drink? • These 3 bottles each have more than 20ml of water in but less than 50ml. The green bottle has 5ml more than the red bottle. The blue bottle has 10ml more than the green bottle. How much could each bottle have in?