

Year 4/5

Mastery Overview Term by Term

Mixed Year Overview

Since our Year 1 to Year 6 Schemes of Learning and overviews have been released we have had lots of requests for something similar for mixed year groups. This document provides the yearly overview that schools have been requesting. We really hope you find it useful and use it alongside your own planning.

We had a lot of people interested in working with us on this project and this document is a summary of their work so far. We would like to take this opportunity to thank everyone who has contributed their thoughts to this final document.

These overviews will be accompanied by more detailed schemes linking to fluency, reasoning and problem solving. Termly assessments will be available to evaluate where the children are with their learning.

If you have any feedback on any of the work that we are doing, please do not hesitate to get in touch. It is with your help and ideas that the Maths Hubs can make a difference.

The White Rose Maths Hub Team

Guidance

The White Rose Maths Hub has produced these long term plans to support mixed year groups. 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.
- provide plenty of time to build reasoning and problem solving elements into the curriculum

This document fits in with the White Rose Maths Hub Year 1 – 6 Mastery documents. If you have not seen these documents before you can register to access them for free by completing the form on this link <http://www.trinitytsa.co.uk/maths-hub/free-learning-schemes-resources/>

Once registered you will be provided with a Dropbox link to access these documents; please be aware some school IT systems block the use of Dropbox so you may need to access this at home.

Mixed age planning

Using the document

The overviews provide guidance on the length of time that should be dedicated to each mathematical concept and the order in which we feel they should be delivered. Within the overviews there is a breakdown of objectives for each concept. This clearly highlights the age related expectations for each year group and shows where objectives can be taught together.

There are certain points where objectives are clearly separate. In these cases, classes may need to be taught discretely or incorporated through other subjects (see guidance below).

Certain objectives are repeated throughout the year to encourage revisiting key concepts and applying them in different contexts.

Lesson Plans

As a hub, we have collated a variety of lesson plans that show how mixed year classes are taught in different ways. These highlight how mixed year classes use additional support, organise groups and structure their teaching time. All these lesson structures have their own strengths and as a teacher it is important to find a structure that works for your class.

Progression documents

We are aware that some teachers will teach mixed year groups that may be arranged differently to our plans (eg R/1). We are therefore working to create some progression documents that help teachers to see how objectives link together from Year 1 to Year 6.

Linking of objectives

Within the overviews, the objectives are either in normal font or in bold. The objectives that are in normal font are the lower year group out of the two covered (Year 1, Year 3, Year 5). The objectives in **bold** are the higher year group out of the two covered (**Year 2, Year 4, Year 6**), Where objectives link they are placed together. If objectives do not link they are separate and therefore require discrete teaching within year groups.

Mixed age planning

Teaching through topics

Most mathematical concepts lend themselves perfectly to subjects outside of maths lessons. It is important that teachers ensure these links are in place so children deepen their understanding and apply maths across the curriculum.

Here are some examples:

- Statistics- using graphs in Science, collecting data in Computing, comparing statistics over time in History, drawing graphs to collect weather data in Geography.
- Roman Numerals- taught through the topic of Romans within History
- Geometry (shape and symmetry)- using shapes within tessellations when looking at Islamic art (R.E), using shapes within art (Kandinsky), symmetry within art
- Measurement- reading scales (science, design technology),
- Co-ordinates- using co-ordinates with maps in Geography.
- Written methods of the four operations- finding the time difference between years in History, adding or finding the difference of populations in Geography, calculating and changing recipes in food technology.
- Direction- Programming in ICT

Objectives split across topics

Within different year groups, topics have been broken down and split across different topics so children can apply key skills in different ways.

Money is one of the topics that is split between other topics. It is used within addition and subtraction and also fractions. In Year 1 and 2 it is important that the coins are taught discretely however the rest of the objectives can be tied in with other number topics.

Other measurement topics are also covered when using the four operations so the children can apply their skills.

In Year 5 and 6, **ratio** has been split across a variety of topics including shape and fractions. It is important that these objectives are covered within these other topics as ratio has been removed as a discrete topic.

Times tables

Times tables have been placed within multiplication and division however it is important these are covered over the year to help children learn them.

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.

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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.

Term by Term Objectives

Year 4 and 5 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	Place Value			Addition and Subtraction			Multiplication and Division				Perimeter	
Spring	Fractions					Decimals and Percentages					Measurement	
Summer	Time		Statistics		Angles		Area	Shape and Symmetry			Position and Direction	

Term by Term Objectives

Year		4 and 5		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
<p>Place Value Count in multiples of 6, 7, 9, 25 and 1000.</p> <p>Find 1000 more or less than a given number. Count forwards or backwards in steps of powers of 10 for any given number up to 1000000.</p> <p>Count backwards through zero to include negative numbers. Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.</p> <p>Recognise the place value of each digit in a four digit number Order and compare numbers beyond 1000. Identify, represent and estimate numbers using different representations. Read, write, order and compare numbers to at least 1000000 and determine the value of each digit.</p> <p>Round any number to the nearest 10, 100 or 1000. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers. Solve number problems and practical problems that involve all of the above.</p> <p>Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19</p>			<p>Addition and Subtraction Add and subtract numbers mentally with increasingly large numbers.</p> <p>Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>Estimate and use inverse operations to check answers to a calculation. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</p> <p>Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why. Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why.</p>			<p>Multiplication and Division Recall and use multiplication and division facts for multiplication tables up to 12 x 12. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers by 10, 100 and 1000.</p> <p>Recognise and use factor pairs and commutativity in mental calculations. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.</p> <p>Multiply two digit and three digit numbers by a one digit number using formal written layout. Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers.</p> <p>Divide numbers up to 4 digits by a one digit number using the formal written method of short division and interpret remainders appropriately for the context.</p> <p>Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3)</p> <p>Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.</p>			<p>Perimeter Convert between different units of measure eg kilometre to metre. Convert between different units of metric measure (for example, km and m; cm and m; cm and mm)</p> <p>Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m Measure and calculate the perimeter of composite rectilinear shapes in cm and m.</p>		

Term by Term Objectives

Year	4 and 5	Term	Spring
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Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<p><u>Fractions</u> Recognise and show, using diagrams, families of common equivalent fractions. Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.</p> <p>Compare and order fractions whose denominators are multiples of the same number.</p> <p>Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p>Add and subtract fractions with the same denominator. Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p> <p>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$]</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p>					<p><u>Decimals and Percentages</u> Recognise and write decimal equivalents of any number of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ Read and write decimal numbers as fractions [eg $0.71 = \frac{71}{100}$] Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p> <p>Round decimals with one decimal place to the nearest whole number. Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Compare numbers with the same number of decimal places up to two decimal places. Read, write, order and compare numbers with up to three decimal places.</p> <p>Solve problems involving number up to three decimal places.</p> <p>Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</p> <p>Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.</p>					<p><u>Measurement</u> Solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p>Estimate, compare and calculate different measures, including money in pounds and pence.</p> <p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p>	

Term by Term Objectives

Year	4 and 5	Term	Summer
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Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
<p>Time Convert between different units of measure eg hour to minute.</p> <p>Read, write & convert time between analogue and digital 12 and 14 hour clocks.</p> <p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p> <p>Solve problems involving converting between units of time.</p>		<p>Statistics Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Complete, read and interpret information in tables including timetables.</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p> <p>Solve comparison, sum and difference problems using information presented in a line graph.</p>		<p>Angles Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</p> <p>Draw given angles, and measure them in degrees ($^{\circ}$)</p> <p>Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) other multiples of 90°</p>		<p>Area Find the area of rectilinear shapes by counting squares.</p> <p>Calculate and compare the area of rectangles (including squares), and including using standard units, cm^2, m^2 estimate the area of irregular shapes.</p>		<p>Shape and Symmetry Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Use the properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>Identify lines of symmetry in 2D shapes presented in different orientations.</p> <p>Complete an simple symmetric figure with respect to a specific line of symmetry.</p> <p>Identify 3D shapes, including cubes and other cuboids, from 2D representations. Estimate volume [for example using 1cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]</p>		<p>Position and Direction Describe positions on a 2D grid as coordinates in the first quadrant.</p> <p>Describe movements between positions as translations of a given unit to the left/ right and up/ down.</p> <p>Plot specified points and draw sides to complete a given polygon.</p> <p>Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</p>	