





TEACHING & LEARNING JOURNAL - EDITION 43

Maths Curriculum

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In my TNG meeting it was apparent that Mildenhall Academy and The Nicholas Hammond Academy both used White Rose as part of their Key Stage 3 curriculum. So I looked into White Rose to see if this could improve our curriculum at Key Stage 3.

White Rose Curriculum

The White Rose Maths SOLs are designed to give sufficient time for teachers to explore and understand concepts in depth, rather than covering it superficially and then returning several times. However, we appreciate that schools will rightly want to enable children to revisit concepts and ensure number fluency.

| | Week 1 | Week 2 | Week 3 | Week 4 | Week 6 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 | |
|--------|--|------------------------------------|---|--------------------------------|--------------------------|------------------------------------|--|-----------------------|--|---------------------------------------|-------------------------------|---------|--|
| | Algebraic Thinking | | | | | | Place Value and Proportion | | | | | | |
| Autumn | Sequences | | Understand and use algebraic notation | | Equality and equivalence | | Place value and ordering integers and decimals | | Fraction, decimal and percentage equivalence | | | | |
| | Applications of Number | | | | | | Directed Number | | | Fractional Thinking | | | |
| Spring | probler addit | ving ms with ion & action | Solving problems with multiplication and division | | | Fractions & percentages of amounts | Operations and equations with directed number | | | Addition and subtraction of fractions | | | |
| Summer | Lines and Angles | | | | | | | Reasoning with Number | | | | | |
| | Constructing, measuring and using geometric notation | | | Developing geometric reasoning | | | Devel | | Sets and probability | | Prime numbers and proof | | |

The Scheme of Work is for all students' looks at deeper understanding. Helping students on their journey towards mastery is exactly what White Rose Maths exists to do. So they spend more time on topics to try and give students' complete understanding of the topic.

I then looked at the first half of the autumn tern to see what was covered in this extended time period. The Scheme of Work covers sequences, Algebraic notation, Algebraic expressions and solving equations. (As Shown below)

Autumn 1: Algebraic thinking · model situations or procedures by translating them into algebraic expressions Week 1: Exploring Sequences substitute values in expressions, rearrange and simplify expressions use and interpret algebraic notation, including: Rather than rushing to find rules for nth term, this week is spent exploring ab in place of $a \times b$ sequences in detail, using both diagrams and lists of numbers. Technology is used to produce graphs so students can appreciate and use the words "linear 3y in place of y + y + a^2 in place of $a \times a$ and "non-linear" linking to the patterns they have spotted. Calculators are used ab in place of $a \times b$ throughout so number skills are not a barrier to finding the changes between terms or subsequent terms. Sequences are treated more formally later this unit. in place of $a \div b$ National curriculum content covered: generate terms of a sequence from a term-to-term rule move freely between different numerical, algebraic, graphical and produce graphs of linear functions of one variable diagrammatic representations make and test conjectures about patterns and relationships Weeks 5 and 6: Equality and equivalence use a calculator and other technologies to calculate results accurately and then interpret them appropriately In this section students are introduced to forming and solving one-step linear generate terms of a sequence from a term-to-term rule equations, building on their study of inverse operations. The equations met will · recognise arithmetic sequences mainly require the use of a calculator, both to develop their skills and to ensure · recognise geometric sequences and appreciate other sequences that arise understanding of how to solve equations rather than spotting solutions. This work will be developed when two-step equations are met in the next place value Weeks 2 to 4: Understanding and using algebraic notation unit and throughout the course. The unit finishes within consideration of The focus of these three weeks is developing a deep understanding of the basic equivalence and the difference between this and equality, illustrated through algebraic forms, with more complex expressions being dealt with later. Function collecting like terms. machines are used alongside bar models and letter notation, with time invested National curriculum content covered: in single function machines and the links to inverse operations before moving on use algebra to generalise the structure of arithmetic, including to formulate to series of two machines and substitution into short abstract expressions. mathematical relationships National curriculum content covered: simplify and manipulate algebraic expressions to maintain equivalence by · move freely between different numerical, algebraic, graphical and collecting like terms diagrammatic representations use approximation through rounding to estimate answers · use algebraic methods to solve linear equations in one variable use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships recognise and use relationships between operations including inverse





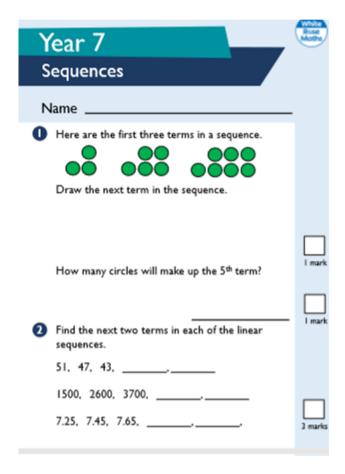
This did not seem a lot of work and would equate to 21 lessons and there is no differentiation in the scheme. So I look at the Sequences lesson plans to see how much was covered in the teaching.

Sequences

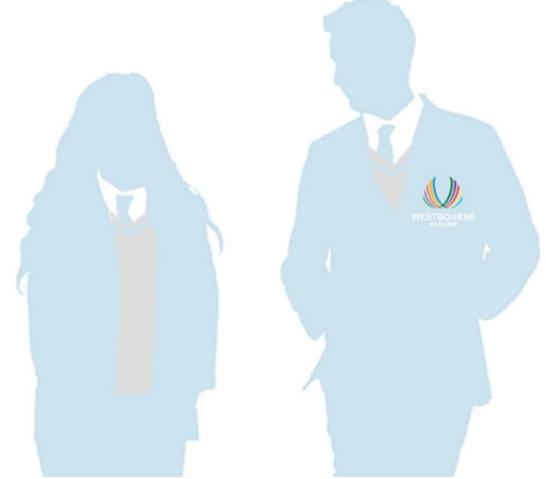
Small Steps

| - | | | |
|---|----|--|----------|
| | | | |
| • | De | escribe and continue a sequence given diagrammatically | |
| | Pr | redict and check the next term(s) of a sequence | |
| • | Re | epresent sequences in tabular and graphical forms | |
| | Re | ecognise the difference between linear and non-linear sequences | |
| | Co | ontinue numerical linear sequences | |
| | Co | ontinue numerical non-linear sequences | |
| | Ex | plain the term-to-term rule of numerical sequences in words | |
| | Fi | nd missing numbers within sequences | (|
| | | | |
| | | H denotes higher strand and not necessarily content for Higher Tier GCSE | |

White Rose looks at Concrete, Pictorial and Abstract when working through a topic. So, the sequences lessons follow the steps and covers most of the topic, but I would expect top sets to be finding the Nth term of sequences as a minimum requirement. So, I investigated the assessment on sequences.



This looks very much like the Key Stage 2 assessments and still did not cover the Nth term for the top set students.





So to summaries White Rose gives a lot of time to complete topics but gives teachers little help in preparing for their lessons and only gives a few examples on the Scheme of Work. The course has differentiation but does not extend the higher ability students as much as Edexcel course does. It seems to be an add on to the primary curriculum and the assessments are not getting the students ready for GCSE papers.

From research it seems that teachers in other schools use the White Rose resources to dip into but do not actually follow the scheme of work. Our current Scheme of work does look at the topics in depth but also provides good questions that are used on the GCSE papers. Also, they have differentiated to allow the top sets to improve using the Delta course, the middle ability to follow the Theta course but also allows the lower ability students to work at the level that suits the Using the Pi course. The Active teach program allows teaches to use the interactive resources and those difficult questions in their teaching. So, I will continue to use the Edexcel course and keep up to date with their changes as they seem the better route to enable all our students to make progress in maths.

