



MATHS



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## Growth Mindsets in Maths



Maths is loaded with 'cultural baggage' – it is culturally acceptable to dislike numbers

'I'm not a maths person'

'I've never been good at maths'

'We're not mathematicians in our family'

## Maths Anxiety!

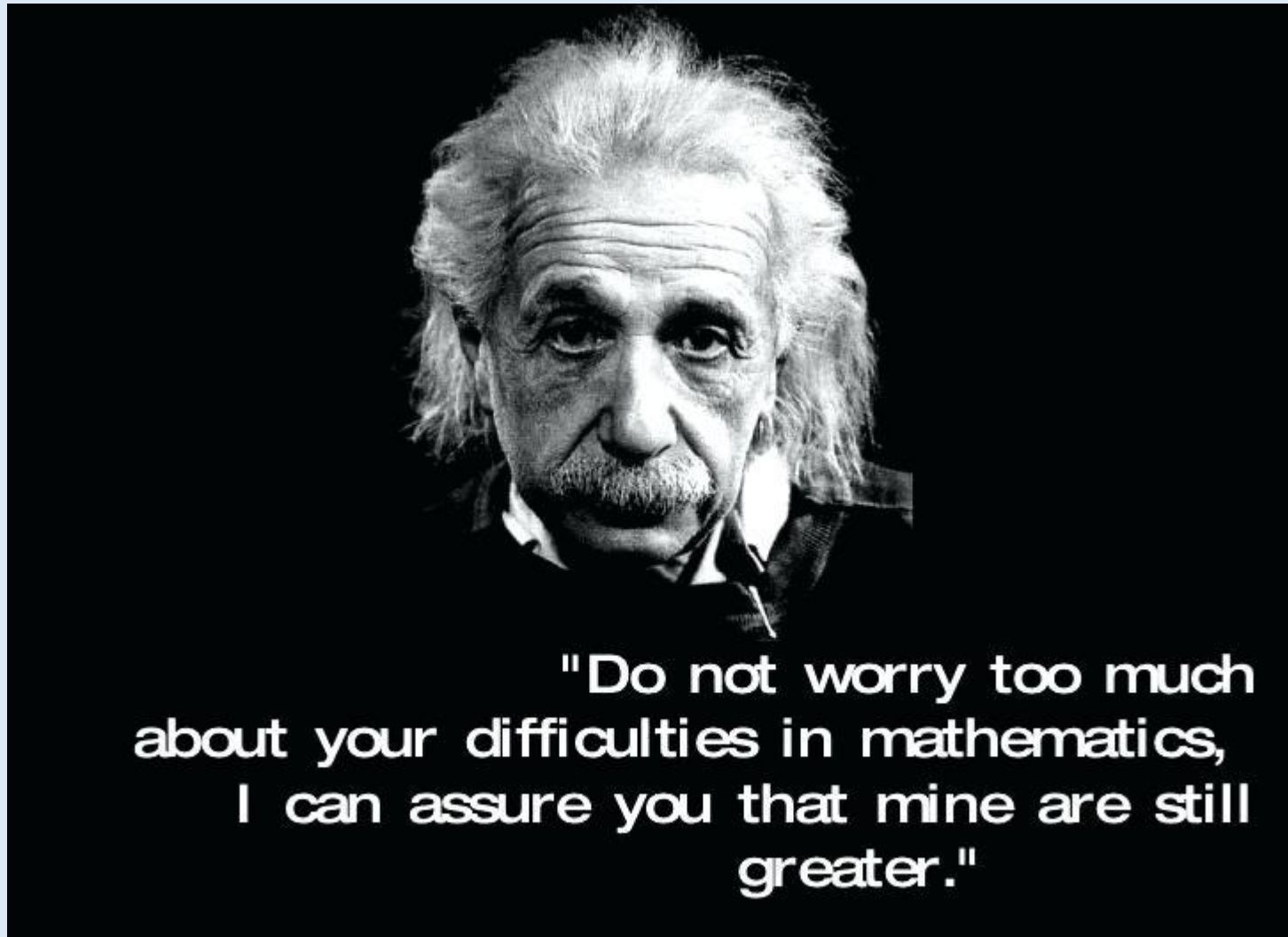
Negative perceptions of maths usually stem from unhappy experiences of maths at school.  
If this was you we are truly sorry, but please try not to pass on these feelings to your child! 😊  
We are here to support you and your child.

At Werneth we believe **everyone** can be a good mathematician.

We aim to build resilience, understanding and confidence.

We want all our students to experience the satisfaction and motivation that comes from mastering this beautiful and universal subject.

This **growth mindset** is at the heart of the **mastery approach** to learning mathematics.



Mr P. Brighton – Subject Leader for Mathematics

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We said we'd support you so let's start by sharing a method for multiplying

How would you work out the following?

$$247 \times 36 =$$

(no calculators!)

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## Multiplication Methods

Long multiplication:      247  
                         x 36

$$\begin{array}{r} 1482 \\ 24 \\ \hline 7410 \\ 12 \\ \hline 8892 \end{array}$$

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## Multiplication Methods

Grid Method:

|    |   |      |      |     |
|----|---|------|------|-----|
|    | x | 200  | 40   | 7   |
| 30 |   | 6000 | 1200 | 210 |
| 6  |   | 1200 | 240  | 42  |

$$\begin{array}{r} 6000 \\ 1200 \\ 210 \\ 1200 \\ 240 \\ 42 + \\ \hline 8892 \end{array}$$

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## **What is a Mastery Curriculum? What is a Mastery Approach?**

Mastery is an approach to teaching maths that aims to gradually build skills, knowledge, confidence by deepening understanding.

The mastery approach values long term recall and understanding over short term performance

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**Mastery** of mathematics means a deep, long-term, secure and adaptable understanding of the subject.

Reasoning  
mathematically

## Three Elements Of Mastery

Problem solving,  
using and applying.

Fluency with  
conceptual  
understanding





### How do we do this?

- Regular quizzing / questioning / low-stakes assessments
- Misconceptions dealt with **immediately**
- Knowledge and understanding becomes stronger and more flexible as students are challenged to make connections between topics
- Higher attainers within a topic are given more complex problems to deepen their knowledge.

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# Year 7 Maths – Scheme of Work

What will they be learning this year?

|  | Autumn 1  | Autumn 2   | Spring 1  | Spring 2  | Summer 1   | Summer 2  |
|--|---|--|---|---|--|---|
| Unit Title   | Addition and its applications   | Subtraction and its applications   | Multiplication and its applications   | Division and its applications   | Fractions, decimals and percentage   | Measuring and angles  |
| Pre Unit A   | (check for verbal reasoning and understanding)  | fact families, number bonds etc. (check for verbal reasoning and understanding of numbers as words), estimation for money decisions  | chunking, fact families, known times tables etc. (check for verbal reasoning and understanding of numbers as words), estimation for money decisions   | fact families, known times tables etc. (check for verbal reasoning and understanding of numbers as words), estimation for money decisions   | Review of calculating with simple fractions  | Ordering & comparing values (integers, decimals, fractions, negatives, percentages)   |
|  | <b>Check In Topics</b>  |  |   |   |  |   |
| Tier 1   | Column addition and subtraction   | Rounding   | Place Value (including decimals)  | Multiplying and dividing by powers of 10  | Estimating   | Fact families   |
| Tier 2 Skills  | Times tables  | Multiplying & dividing fact families   | Finding missing terms in a simple linear sequence   | Multiplying and dividing  | Mixed to improper fractions  | Inverse operations  |
| Tier 3 Problem   | Money calculations e.g. cafe menus, bank  | Worded problems on basic solving one   | Comparing scale in a real life context  | LCM simple worded questions   | HCF simple worded questions  | Worded two step solving equations   |
|  | <b>Powerful Knowledge</b>   |  |   |   |  |   |
| Interoperate   | 1) Negative numbers - What happens when written methods of addition for integers - Written methods of addition - covers place Adding negative numbers (can talk about Adding like terms - introduction to algebraic Adding fractions (like denominators) - Adding time - introduce the idea of working understand that addition is commutative order and compare whole numbers using using given numbers, make the largest/smallest number estimate answers before calculating fact families, understand equality | 1) Fractions being used in real life. Written methods of subtraction for Subtracting negative numbers (can talk Subtracting fractions (like subtracting like terms - introduction to subtracting time - how this works can be understand that subtraction is not symmetry of subtraction (e.g. 4 - 3 estimate answers before calculating fact families, understand equality - use bar models | 1) Link to LCM why do hot dog buns Multiples - LCM from Listing Writing repeated multiplication as Multiplying by powers of 10 inc. Written Methods of multiplication for Multiplication of decimal numbers - Multiplication of negative numbers - Multiplying fractions - proper and Multiplying with algebra (inc. Multiplying Time (only whole multiples of time) understand that multiplication is commutative estimate answers before calculating NOT estimation as a order of operation with BEDMAS | 1) What is the largest known prime. Prime numbers & Factors - HCF Prime Factor decomposition inc. Dividing by powers of 10 inc. Written Methods of division for Division of decimal numbers - can be Division of negative numbers - can Dividing fractions - proper and Dividing with algebra (inc. fractions) Dividing Time (only whole factors) understand that division is not commutative estimate answers before calculating - NOT estimation as a order of operations with all BEDMAS | 1) Use of percentages to denote. Equivalent Fractions/Simplifying Mixed numbers to Improper fractions Converting between fractions, decimals compare/order fractions, decimals Expressing one number as a fraction of adding and subtracting unlike fractions adding and subtracting mixed numbers Multiplying and dividing mixed numbers work with fractions and decimals e.g. $3/4 \div 0.7$ | 1) Estimation of costs for building Rounding to 10, 100, 1000 (covered in Rounding to significant figures Estimation Measuring and drawing in different units estimating lengths/weights Using known measurements to estimate converting between units of measure Problem solving with measure and          |
|  | Interpret calculator display (e.g. if an calculator displays 42.584 and the question is about money, what does this number represent? What if the question was about length, what does it mean? Do you need to truncate? Can you round your answer from the calculator display?   |  |   |   |  |   |
|  | Addition with money - shopping, wages, Perimeter including algebra ( $P = 2w + 2l$ ), Increasing sequences including algebra, scales/number lines   | subtraction with money - budgeting, Perimeter problems including algebra, Decreasing sequences including algebra, scales/number lines  | Multiplication with money - calculating, Area, including algebra ( $A = bh$ ), Geometric sequences (increasing only), Function Machines (single) - include  | Division with money - calculating, Area including algebra, fractions, Geometric sequences (increasing only), Function Machines (single) - include   | Expressing one number as a percentage, percentage increase and decrease (from), percentage increase and decrease using, Percentage change, Problem solving with FDP, Worded contextual Problems with FDP, Finance with FDP, percentage of an amount - to be  | line and angle notation, types of angle, drawing and measuring angles, Symmetry, Types of triangle and quadrilateral and angles in triangles and quadrilaterals, Naming basic 3D shapes and their, Applying knowledge - pie charts, Problem solving with geometric reasoning, Real life geometric reasoning |
| Function machines (single) - include inverse form and solve one step equations, use worded problems including fractions, decimals Addition and key angle facts (lines, point, Timetable problems (bus, train etc.) Frequency trees Two way tables terms, identity, expression, formulae etc. | Function machines (single) - include form and solve one step equations, worded problems including fractions, Subtraction and key angle facts (lines, Timetable problems (bus, train etc.) Frequency Trees Two way tables  | Function Machines (double) - should solve one step equations - should solve two step equations - forming worded problems including fractions   | Function Machines (double) - include Form and solve one step Form and solve two step worded problems including  |   |  |   |
| Progress checks End of unit/ ORACY Qs  | Progress Checks End of unit assessment AU1 Oracy  | Progress Checks Progress Test AU2 Oracy  | Progress Checks End of unit assessment SP1 Oracy  | Progress Checks Progress Test SP2 Oracy   | Progress Checks End of unit assessment SU1 Oracy   | Progress Checks Progress test SU2 Oracy   |

Content Essential Knowledge in yellow

Year 7 curriculum has recently been completely rewritten to enhance the level of challenge from KS2 to KS3

Your child will study units in the four main skills of Maths. Addition, subtraction, multiplication and division

They will then study multiple topics with one of those four skills at the heart of it



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| Unit Title                                  | Addition and its applications  | Subtraction and its applications  | Multiplication and its applications  | Division and its applications   | Fractions, decimals and percentages  | Measuring and angles   |
| Pre Unit A                                  | (check for verbal reasoning and understanding of numbers as words), estimation for context   |   |  |   |  |  |
| Tier 1                                      | Column addition and subtraction  | Rounding  | Place Value (including decimal)  | Multiplying and dividing by powers of 10  | Estimating   | Fact families  |
| Tier 2 Skills                               | Times tables   | Multiplying & dividing fact families  | Finding missing terms in a simple linear sequence  | Multiplying and dividing LCM simple worded questions  | Mixed to improper fractions  | Inverse operations   |
| Tier 3 Problem                              | Money calculations e.g. cafe menus, bank   | Worded problems on basic solving one  | Comparing scale in a real life context   | LCM simple worded questions   | HCF simple worded questions  | Worded two step solving equations  |
| Check In Topics                             |  |   |  |   |  |  |
| Incorporate                                 | 1) Negative numbers - What happens when...<br>Written methods of addition for integers -<br>Written methods of subtraction for integers - covers place<br>Adding negative numbers (can talk about<br>Adding like terms - introduction to algebraic<br>Adding fractions (like denominators) -<br>Adding time - introduce the idea of working<br>understand that addition is commutative<br>order and compare whole numbers using<br>using given numbers, make the<br>largest/smallest number<br>estimate answers before calculating<br>fact families, understand equality | 1) Fractions being used in real life<br>Written methods of subtraction for<br>Written methods of subtraction<br>Subtracting negative numbers (can talk<br>Subtracting fractions (like<br>Subtracting like terms - introduce on to<br>subtracting like terms - how this works can be<br>understand that subtraction is not<br>symmetry of subtraction (e.g. 4 - 1<br>estimate answers before calculating<br>order of operation with AS<br>fact families, understand equality -<br>use bar models | 1) Link to LCM why do hot dogs come<br>Multiples - LCM from Listing<br>Writing repeated multiplication as<br>Multiplying by powers of 10 inc<br>Written Methods of multiplication for<br>Multiplication of decimal numbers -<br>Multiplication of negative numbers -<br>Multiplying fractions - proper and<br>Multiplying with algebra (inc.<br>Multiplying Time (only whole multiples<br>of time)<br>understand that multiplication is<br>commutative<br>estimate answers before<br>calculating NOT estimation as a<br>order of operation with BEDMAS | 1) What is the largest known prime<br>Prime numbers & Factors - HCF<br>Prime Factor decomposition inc<br>Dividing by powers of 10 inc<br>Written Methods of division for<br>Division of decimal numbers - can be<br>Division of negative numbers - can<br>Dividing fractions - proper and<br>Dividing with algebra (inc. fractions)<br>Dividing Time (only whole factors)<br>understand that division is not<br>commutative<br>estimate answers before<br>calculating - NOT estimation as a<br>order of operations with all<br>BEDMAS | 1) Use of percentages to denote<br>Equivalent Fractions/Simplifying<br>Mixed numbers to Improper fractions<br>Converting between fractions, decimals<br>compare/order fractions, decimals<br>Expressing one number as a fraction of<br>adding and subtracting unlike fractions<br>adding and subtracting mixed numbers<br>Multiplying and dividing mixed numbers<br>work with fractions and decimals e.g.<br>3/4 + 0.7 | 1) Estimation of costs for building<br>Rounding to 10, 100, 1000 (covered in<br>Rounding to significant figures<br>Estimation<br>Measuring and drawing in different units<br>estimating lengths/weights<br>Using known measurements to estimate<br>converting between units of measure<br>Problem solving with measure and     |
| Content<br>Essential Knowledge<br>in yellow | Interpret calculator display (e.g. if an calculator displays 42.584 and the question is about money, what does this number represent? What if the question was about length, what does it mean? Do you need to truncate? Can you round your answer from the calculator display?  |   |  |   |  |  |
|   | Addition with money - shopping, wages,<br>Perimeter including algebra (P = 2w+2l)<br>Increasing sequences including algebra<br>scales/number lines<br>Function machines (single) - include inverse<br>form and solve one step equations, use<br>worded problems including fractions, decimals<br>Addition and key angle facts (lines, point,<br>Timetable problems (bus, train etc.)<br>Frequency trees<br>Two way tables<br>Terms, identity, expression, formulae etc.  | Subtraction with money - budgeting,<br>Perimeter problems including algebra<br>Decreasing sequences including<br>scales/number lines<br>Function machines (single) - include<br>form and solve one step equations,<br>worded problems including fractions,<br>Subtraction and key angle facts (lines,<br>Timetable problems (bus, train etc.)<br>Frequency trees<br>Two way tables  | Multiplication with money - calculating<br>Area, including algebra (A= bh)<br>Geometric sequences (increasing only)<br>Function Machines (single) - include<br>solve one step equations - should<br>solve two step equations - forming<br>worded problems including fractions  | Division with money - calculating<br>Area including algebra, fractions<br>Geometric sequences<br>Function Machines (single) - include<br>Form and solve one step<br>Form and solve two step<br>worded problems including<br>percentage of an amount - to be   | Expressing one number as a percentage<br>percentage increase and decrease (non<br>percentage increase and decrease using<br>Percentage change<br>Problem solving with FDP<br>Worded contextual Problems with FDP<br>Finance with FDP<br>percentage of an amount - to be  | line and angle notation<br>types of angle<br>drawing and measuring angles<br>Symmetry<br>types of triangle and quadrilateral and<br>angles in triangles and quadrilaterals<br>Naming basic 3D shapes and their<br>Applying knowledge - pie charts<br>Problem solving with geometric reasoning<br>Real life geometric reasoning |
|   | Progress checks<br>End of unit/<br>ORACY Qs  | Progress Checks<br>End of unit assessment<br>AU1 Oracy  | Progress Checks<br>End of unit assessment<br>SP1 Oracy   | Progress Checks<br>Progress Test<br>SP2 Oracy   | Progress Checks<br>End of unit assessment<br>SU1 Oracy   | Progress Checks<br>Progress Test<br>SU2 Oracy  |

Learning is sequenced in to units, each unit should take around 6 weeks to complete.

Your child's understanding will be checked periodically during each unit at key learning points.

These progress checks will be used to inform the teaching of the next few lessons and they will undertake a full assessment once per half term.

Progress will be fed back to you via reports at 3 points over the year.



# Year 7 Maths - Homework

1. Homework is all on Sparx and is set every Friday and due every Thursday
2. Each homework consists of tasks made up of varying questions and a timetable quiz. The topics are set by the class teacher and based on previous learning. There are videos available to support each question.
3. Students should aim to achieve 100% on the questions (the video mirrors the questions) or around an hour.
4. If they are stuck, they can message us on Edulink, speak to us in lessons or attend lunch time drop ins.

The screenshot displays the Sparx Homework interface. On the left sidebar, there are four categories: 'Compulsory' (None available), 'XP Boost' (None available), 'Target' (None available), and 'Sparx Practice' (highlighted with a blue arrow). The main content area features a blue header with the Sparx logo and 'Homework' text. Below the header, a message states: 'Practice homework is designed to help you learn how to use Sparx. Completing this does not count towards the weekly homework set by your teacher.' A section titled 'Sparx practice homework' contains three tasks: 'Task 1', 'Task 2', and 'Task 3', each with a progress bar and a 'New' button. At the bottom, there are seven items labeled 'Item A' through 'Item G', each with a video icon and an 'Answer' button.



# Ways you can support...

Be involved – ask your child what they're learning and how they're doing.

Let your child's teacher know of any difficulties with homework.

**EduLink** is a good way to message teachers.

(Logins are created by your child)

If you are concerned your child is struggling with a topic (or if they are not being sufficiently challenged), please get in touch.

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# Get the 'Basics' Sorted

**Times tables matter** – this has always been true!

Multiplication underpins so much GCSE maths, it is well worth investing time in making sure your child can recall their times table facts.

The single biggest factor in building enjoyment and success in maths is secure knowledge of multiplication facts.

Test them, encourage them to test themselves, use apps, websites, paper, songs!

Working memory is limited – the better they know their tables the more mental energy they have available to learn the new stuff!

**Four rules** and **number bonds** are also really helpful.

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# Maths Email Addresses

|       |                  |  |
|-------|------------------|--|
| PBR   | Phillip Brighton | <a href="mailto:philip.brighton@wernethschool.com">philip.brighton@wernethschool.com</a>   |
| EBE   | Eleanor Bennett  | <a href="mailto:eleanor.bennett@wernethschool.com">eleanor.bennett@wernethschool.com</a>   |
| MJO   | Matthew Jones    | <a href="mailto:Matthew.jones@wernethschool.com">Matthew.jones@wernethschool.com</a>       |
| DED   | Delia Edge       | <a href="mailto:delia.edge@wernethschool.com">delia.edge@wernethschool.com</a>             |
| KKI   | Karen Kiernan    | <a href="mailto:karen.kiernan@wernethschool.com">karen.kiernan@wernethschool.com</a>       |
| GKE   | Gillian Kennedy  | <a href="mailto:Gillian.kennedy@wernethschool.com">Gillian.kennedy@wernethschool.com</a>   |
| RWS   | Rhiannon Baker   | <a href="mailto:Rhiannon.Baker@wernethschool.com">Rhiannon.Baker@wernethschool.com</a>     |
| JRA   | Julie Ramsbottom | <a href="mailto:julie.ramsbottom@wernethschool.com">julie.ramsbottom@wernethschool.com</a> |
| FSO   | Farrah Southwell | <a href="mailto:farrah.southwell@wernethschool.com">farrah.southwell@wernethschool.com</a> |
| AFS   | Aisling Forbes   | <a href="mailto:Aisling.forbes@wernethschool.com">Aisling.forbes@wernethschool.com</a>     |
| MATHS | GENERAL QUERIES  | <a href="mailto:maths.enquiries@wernethschool.com">maths.enquiries@wernethschool.com</a>   |

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