

The background features the text 'I Love Maths' in a large, light grey, rounded font. A large, semi-transparent pink heart is positioned behind the text, centered over the word 'Love'.

Year 7 Maths at Walton High

Information Evening

Maths

Areas to Cover

- Maths years 7 – 11
- Content of Year 7 Maths
- Essential knowledge and understanding
- Methods used
- Ways you can help

Maths Year 7 - 11

- KS3 – years 7 and 8
- Builds on Primary School
- Revisit and extend
- Introduction of formal algebraic methods
- Mixed ability + extension group
- Assessed using National Curriculum Levels

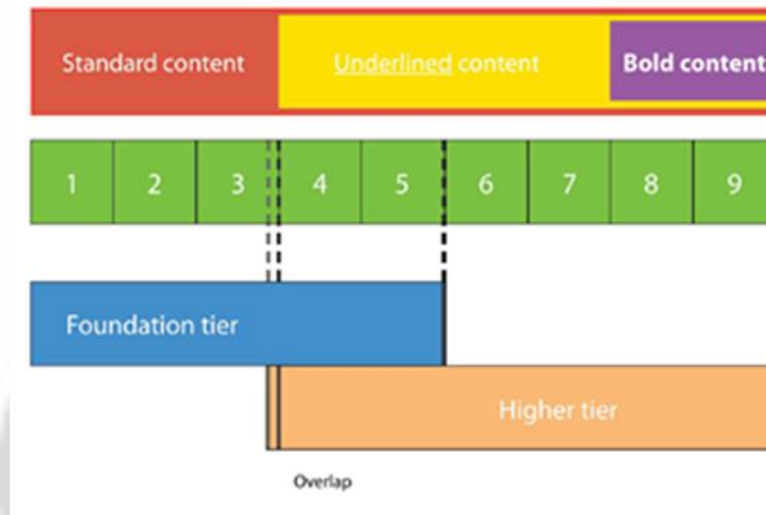
Maths Years 7 - 11

- Year 9 – start of KS4
- GCSE will contain additional content (compared to current GCSE)
- Foundation level will contain more content than it does currently
- 3 types of question:
 - Use and apply standard techniques (AO1)
 - Reason, interpret and communicate mathematically (AO2)
 - Solve problems within mathematics in other contexts (AO3)

Maths Years 7 - 11

The DfE has split the subject content into three groups:

- content that all students should master
- content that should be taught, but higher achieving students should master
- content that will be taught only to higher achieving students and mastered by the highest achievers (those likely to go on to A-level study in maths)



Maths Years 7 - 11

Paper 1: non-calculator

Content

- Content from any part of the specification may be assessed

Assessment

- 1 hour 30 minutes
- written exam
- 80 marks
- $33\frac{1}{3}\%$ of GCSE

Paper 2: calculator

Content

- Content from any part of the specification may be assessed

Assessment

- 1 hour 30 minutes
- written exam
- 80 marks
- $33\frac{1}{3}\%$ of GCSE

Paper 3: calculator

Content

- Content from any part of the specification may be assessed

Assessment

- 1 hour 30 minutes
- written exam
- 80 marks
- $33\frac{1}{3}\%$ of GCSE

Maths Years 7 - 11

The mathematical content is defined by the DfE's *GCSE subject content and assessment objectives* document.

Subject area	Foundation Tier weighting	Higher Tier weighting
Number	25%	15%
Algebra	20%	30%
Ratio, proportion and rates of change	25%	20%
Geometry and measures	15%	20%
Probability and statistics	15%	15%

Maths Years 7 - 11

- Assessment throughout years 7 – 11
- Generally, once a half term
- Diagnostic testing in the first half term to supplement information from primary schools
- Targets set according to government guidelines for progress
- NC levelled tests each term which are reported on.
- Warning: levels may go down as well as up!
- GCSE grades (year 9 onwards)
- Again, they may go down as well as up!

Content of Year 7 Maths

Maths content is divided into key topics along two pathways: one for students who exceeded minimum standard at KS2 and one for students who met the minimum standard.

Exceeded minimum standard
at end of KS2

Met minimum standard at
end of KS2

Week	1	2	3	4	5	6	7	8	Autumn Half Term
	Washing Line Problem Solving	Numbers and the Number System			Calculating			Visualising and Constructing	
		Numbers and the Number System			Calculating		Calculating (Division)	Visualising and Constructing	

Week	9	10	11	12	13	14	15	Xmas Holidays
Set 1 and Set 2	Visualising and Constructing		Investigating Properties of Shape		Algebraic proficiency: tinkering			
Set 2	Visualising and Constructing		Investigating Properties of Shape		Algebraic proficiency: using formulae			

Number and the Number System

Example

- Teachers plan lessons for each topic around detailed learning objectives (or success criteria).

Possible success criteria

- Recall prime numbers up to 50
- Know how to test if a number up to 150 is prime
- Know the meaning of 'highest common factor' and 'lowest common multiple'
- Recognise when a problem involves using the highest common factor of two numbers
- Recognise when a problem involves using the lowest common multiple of two numbers
- Understand the use of notation for powers

Possible success criteria

- Understand place value in numbers with up to three decimal places
- Multiply whole numbers by 10 (100, 1000)
- Divide whole numbers by 10 (100, 1000) when the answer is a whole number
- Multiply (divide) numbers with up to three decimal places by 10 (100, 1000)
- Understand (order, write, read) place value in numbers with up to eight digits

Mastery Indicators and Essential Knowledge for End of Year 7

- At the end of year 7 students are expected to have *mastered* a set of skills and to *know* a set of key facts.
- Hence, for each pathway there is a
 - List of **mastery indicators**
 - List of **essential knowledge**

Maths

Essential Knowledge for Students Meeting Minimum Standard at KS2

Essential Knowledge for Students Meeting Minimum Standard at KS2

- Know percentage and decimal equivalents for fractions with a denominator of 2, 3, 4, 5, 8 and 10
- Know the rough equivalence between miles and kilometres
- Know that vertically opposite angles are equal
- Know that the area of a triangle = $\text{base} \times \text{height} \div 2$
- Know that the area of a parallelogram = $\text{base} \times \text{height}$
- Know that volume is measured in cubes
- Know the names of parts of a circle
- Know that the diameter of a circle is twice the radius
- Know the conventions for a 2D coordinate grid
- Know that mean = $\text{sum of data} \div \text{number of pieces of data}$

Essential Knowledge for Students Exceeding Minimum Standard at KS2

Essential Knowledge for Students Exceeding Minimum Standard at KS2

- Know the first 6 cube numbers
- Know the first 12 triangular numbers
- Know the symbols =, ≠, <, >, ≤, ≥
- Know the order of operations including brackets
- Know basic algebraic notation
- Know that area of a rectangle = $l \times w$
- Know that area of a triangle = $b \times h \div 2$
- Know that area of a parallelogram = $b \times h$
- Know that area of a trapezium = $((a + b) \div 2) \times h$
- Know that volume of a cuboid = $l \times w \times h$
- Know the meaning of faces, edges and vertices
- Know the names of special triangles and quadrilaterals
- Know how to work out measures of central tendency
- Know how to calculate the range

Mastery Indicators for Students Meeting Minimum Standard at KS2

Mastery Indicators for Students Meeting Minimum Standard at KS2

- Multiply and divide numbers with up to three decimal places by 10, 100, and 1000
- Use long division to divide numbers up to four digits by a two-digit number
- Use simple formulae expressed in words
- Generate and describe linear number sequences
- Use simple ratio to compare quantities
- Write a fraction in its lowest terms by cancelling common factors
- Add and subtract fractions and mixed numbers with different denominators
- Multiply pairs of fractions in simple cases
- Find percentages of quantities
- Solve missing angle problems involving triangles, quadrilaterals, angles at a point and angles on a straight line
- Calculate the volume of cubes and cuboids
- Use coordinates in all four quadrants
- Calculate and interpret the mean as an average of a set of discrete data

Mastery Indicators for Students Meeting Exceeding Standard at KS2

Mastery Indicators for Students Exceeding Minimum Standard at KS2

- Use positive integer powers and associated real roots
- Apply the four operations with decimal numbers
- Write a quantity as a fraction or percentage of another
- Use multiplicative reasoning to interpret percentage change
- Add, subtract, multiply and divide with fractions and mixed numbers
- Check calculations using approximation, estimation or inverse operations
- Simplify and manipulate expressions by collecting like terms
- Simplify and manipulate expressions by multiplying a single term over a bracket
- Substitute numbers into formulae
- Solve linear equations in one unknown
- Understand and use lines parallel to the axes, $y = x$ and $y = -x$
- Calculate surface area of cubes and cuboids
- Understand and use geometric notation for labelling angles, lengths, equal lengths and parallel lines

Essential Knowledge and Understanding

- Times Tables!
 - Critical to good progress
 - Without them, other areas of maths become more difficult
 - 3 levels of knowledge
 - 3,6,9,12,15,18.....
 - $1 \times 3 = 3$, $2 \times 3 = 6$
 - If the answer is 18, it must be 3×6
 - Set up a chart, stick it on the fridge and spend time hearing your child recite the tables
 - Long car journeys, dinner time, over breakfast!

Essential Knowledge and Understanding

- Adding and subtracting (3 digit numbers)
- Multiplying (3 digit numbers)
- Dividing 3 digit by 1 digit
- Dividing 3 digit by 2 digit

Essential Knowledge and Understanding

- Meaning of Fractions
- Equivalent Fractions
- Fractions of amounts (mental arithmetic)
- (Adding/subtracting)

Maths

Essential Knowledge and Understanding

- Types of Numbers
 - Prime numbers
 - Square numbers
 - Cube numbers
 - Factors
 - Multiples

Essential Knowledge and Understanding

- Decimals
 - What they mean – place value
 - Links to fractions
 - Location on number lines
 - Ordering by size
 - Knowing that the number of decimal places is not an indicator of their size
 - Being able to multiply/divide by 10, 100, 1000 etc.

Essential Knowledge and Understanding

- Understanding metric system of measures
 - Length
 - Weight
 - Volume
- Having approximate ideas on how long/heavy etc. different items are
- Relationship between cm, m and km etc.

Methods Used

- Adding and subtracting
 - Column method
- Multiplying
 - Long multiplication
 - Grid method
- Division
 - Long division
 - Short division
 - Chunking (repeated subtraction)

Methods Used

- Fractions
 - Addition/subtraction using equivalent fractions
- Multiplication
 - Simplifying fractions
- Division
 - Leave, change, flip!
- Mixed numbers to improper fractions

Methods Used

- Decimals
 - Multiplying/dividing by powers of 10
 - Move the numbers, not the decimal point
- Ordering decimals
 - Make the number of decimal places the same

Methods Used

- Finding factors
- Finding multiples
- Prime factor decomposition