

Year 9 Scheme of work

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At Upper Shirley High

Guidelines

- The purpose of this scheme of work is to build pupils towards a terminal exam at the end of Y9 and an old style GCSE exam at the end of year 10 (see headings of different tiers on SOW).
- Pupils will be assessed during the year given the opportunity to know how they are performing in comparison to other pupils who took the same test.
- Red codes (e.g. **1.2**) show suggested exercises in the recommended textbook 'Foundation GCSE mathematics revision and practice'. **1:2** – refers to chapter 1, exercise 2. Blue codes (e.g. **4:12**) show suggested exercises in the recommended textbook 'Higher GCSE mathematics revision and practice'. A guideline is that a pupil who has completed a good amount of questions in each exercise is working at a level appropriate for the test they will take.
- This scheme of work is up for review at the end of the academic year to improve it ready for the next cohort. Please consider throughout the year which things you would like to change and be ready to discuss this in the summer term.
- The key to success for our students when using this SOW is constant revision of previous concepts. This should be done continuously through starters and 6 grids. This will allow tests to be cumulative (i.e. a test sat in Spring will contain work covered in Spring and Autumn).

<p style="text-align: center;">Support</p> <p style="text-align: center;">Aim: Review to see whether should take old intermediate paper or foundation paper at the end of year 10 (without covering all topics).</p>	<p style="text-align: center;">Core</p> <p style="text-align: center;">Aim: Take old Intermediate at the end of year 10.</p>	<p style="text-align: center;">Extension</p> <p style="text-align: center;">Aim: Take old GCSE Higher at end of year 10. Minus redundant topics. (Old intermediate at the end of Y9)</p>
<p>General revision of 4 operations, percentages and decimals. Plus application into worded questions.</p>	<p>General revision of 4 operations, percentages and decimals. Plus application into worded questions.</p>	<p>General revision of 4 operations, percentages and decimals. Plus application into worded questions.</p>
<p>GCSE Style Algebra</p> <ul style="list-style-type: none"> - Solving linear equations not including unknowns on both sides 2:9, 2:10, 2:13, 3:8, 3:9, 3:10 - Expanding and simplifying single brackets, e.g. $3(x + 4) + 2(4x - 6)$ 2:5 - Expanding double brackets with positive numbers only 6:18 - Factorising simple single brackets 6:1 	<p>GCSE Style Algebra</p> <ul style="list-style-type: none"> - Solving linear equations including unknowns on both sides 2:9, 2:10, 2:11, 2:12, 2:13, 2:14, 2:15, 3:8, 3:9, 3:10, 3:11, 3:12, 3:13, 3:14, 3:15 - Expanding and simplifying single brackets, e.g. $3(x + 4) - 2(4x - 6)$ 2:5, 2:6, 3:4 - Expanding double brackets 6:18, 3:5 - Factorising single brackets 6:1, 3:6 - Factorising double brackets (no coefficient of x^2) 6:19, 6:20, 7:6, 7:8 - Easy re-arranging equations (no factorising) 6:2, 6:3, 6:4, 	<p>GCSE Style Algebra</p> <ul style="list-style-type: none"> - Solving linear equations including unknowns on both sides 2:9, 2:10, 2:11, 2:12, 2:13, 2:14, 2:15, 3:8, 3:9, 3:10, 3:11, 3:12, 3:13, 3:14, 3:15 - Expanding and simplifying single brackets, e.g. $3(x + 4) - 2(4x - 6)$ 2:5, 2:6, 3:4 - Expanding double brackets 6:18, 3:5 - Factorising single brackets 6:1, 3:6 - Factorising double brackets (no coefficient of x^2) 6:19, 6:20, 7:6, 7:8 - Solving linear simultaneous equations 6:28, 6:30, 6:31, 6:32, 3:38, 3:39, 3:40 - Rearranging equations (but no need to factorise) 6:2, 6:3, 6:4, 6:5, 6:6, 5:1, 5:2, 5:3, 5:4, 5:7
<p>Pythagoras</p>	<p>Pythagoras</p>	<p>Pythagoras</p>

<ul style="list-style-type: none"> - Find the hypotenuse (rounding to d.p only) 7:30 - Find the length of a short side (rounding to d.p only) 7:31, 7:32, 7:33 	<ul style="list-style-type: none"> - Find the hypotenuse (rounding to d.p and s.f.) 7:30 - Find the length of a short side (rounding to d.p and s.f.) 7:31, 7:32, 7:33, 4:10 	<ul style="list-style-type: none"> - Find the hypotenuse (rounding to d.p and s.f.) 7:30 - Find the length of a short side (rounding to d.p and s.f.) 7:31, 7:32, 7:33, 4:10
<p>Circles</p> <ul style="list-style-type: none"> - Find the circumference (rounding to d.p only) - Find the area of a circle (rounding to d.p only) 	<p>Circles</p> <ul style="list-style-type: none"> - Find the circumference (rounding to d.p and s.f.) 7:12, 4:16 Q1-7 - Find the area of a circle (rounding to d.p and s.f.) 7:13, 4:16 Q8-12 - Area and perimeter of semi-circles (rounding to d.p and s.f.) 7:14, 4:17 	<p>Circles</p> <ul style="list-style-type: none"> - Find the circumference (rounding to d.p and s.f.) 7:12, 4:16 Q1-7 - Find the area of a circle (rounding to d.p and s.f.) 7:13, 4:16 Q8-12 - Area and perimeter of semi-circles (rounding to d.p and s.f.) 7:14, 4:17
<p>One week for: 1) Revision – a revision sheet will be available</p>		
<p>Half Term</p>		
<p>DC1 on everything covered so far</p>		
<p>GCSE Number Skills</p> <ul style="list-style-type: none"> - Product of prime factors, using a factor tree, expressed in index form 1:5 - HCF 1:3, 1:13 - LCM 1:3, 1:13 - Convert a number expressed in standard form into an ordinary number 1:42 Q21-29 - Estimation, estimating a calculation by rounding to 1.s.f. (excluding decimal denominators). 5:39, 5:40 	<p>GCSE Number Skills</p> <ul style="list-style-type: none"> - Product of prime factors, using a factor tree, expressed in index form 1:5, 1:12 - HCF 1:3, 1:13 - LCM 1:3, 1:13 - Convert a number expressed in standard form into an ordinary number 1:42 Q21-29, 2:17 Q25-28 - Express ordinary numbers in standard form 1:42 Q1-20, 2:17 Q1-24 - Estimation, estimating a calculation by rounding to 1.s.f. (including decimal denominators) 5:39, 5:40, 1:18, 1:19 	<p>GCSE Number Skills</p> <ul style="list-style-type: none"> - Product of prime factors, using a factor tree, expressed in index form 1:5, 1:12 - HCF 1:3, 1:13 - LCM 1:3, 1:13 - Convert a number expressed in standard form into an ordinary number 1:42 Q21-29, 2:17 Q25-28 - Express a number in standard form 1:42 Q1-20, 2:17 Q1-24 - Estimation, estimating a calculation by rounding to 1.s.f. (including decimal denominators) 5:39, 5:40, 1:18, 1:19

<p>GCSE Algebraic Graphs</p> <ul style="list-style-type: none"> - Construct a linear graph from an equation, with and without a calculator 6:10, 6:11, 6:12, 3:26 Q1-12 - Construct a quadratic graph from an equation, with a calculator 6:25, 6:26, 5:16 	<p>GCSE Algebraic Graphs</p> <ul style="list-style-type: none"> - Construct a linear graph from an equation, with and without a calculator 6:10, 6:11, 6:12, 3:26 Q1-12 - Construct a quadratic graph from an equation, with and without a calculator 6:25, 6:26, 5:16 - Draw simple conclusions from these graphs, e.g. find x when $y=7$ 3:26 Q13-15 	<p>GCSE Algebraic Graphs</p> <ul style="list-style-type: none"> - Construct a linear graph from an equation, with and without a calculator 6:10, 6:11, 6:12, 3:26 Q1-12 - Construct a quadratic graph from an equation, with and without a calculator 6:25, 6:26, 5:16 - Draw simple conclusions from these graphs, e.g. find x when $y=7$ 3:26 Q13-15 - Basic understanding of $y=mx+c$ (e.g. basic understanding of gradients and finding the y-intercept) 6:13, 6:14, 6:15, 3:29, 3:30
<p>GCSE Inequalities</p> <ul style="list-style-type: none"> - Represent inequalities on a number line 6:7, 5:8 - Write a list of numbers that satisfy an inequality. - Solve an inequality, not including unknowns on both sides 6:8 Q1-9, 5:9 Q1-9 	<p>GCSE Inequalities</p> <ul style="list-style-type: none"> - Represent inequalities on a number line 6:7, 5:8 - Write a list of numbers that satisfy an inequality. - Solve an inequality, including unknowns on both sides 6:8, 6:9, 5:9, 5:10 	<p>GCSE Inequalities</p> <ul style="list-style-type: none"> - Represent inequalities on a number line 6:7, 5:8 - Write a list of numbers that satisfy an inequality. - Solve an inequality, including unknowns on both sides 6:8, 6:9, 5:9, 5:10 - Define simple regions on a set of axes (e.g. $x > 0, y < 1$ and $y > x + 1$) 5:12
Christmas		
<p>GCSE Percentages</p> <ul style="list-style-type: none"> - Calculate simple percentage increase and decrease with and without a calculator 5:14, 5:15, 5:16, 2:4, 2:5 	<p>GCSE Percentages</p> <ul style="list-style-type: none"> - Calculate percentage increase and decrease with and without a calculator 5:14, 5:15, 5:16, 2:4, 2:5 - Calculate compound interest and depreciation, with a calculator 5:20, 5:23, 2:9 	<p>GCSE Percentages</p> <ul style="list-style-type: none"> - Calculate percentage increase and decrease with and without a calculator 5:14, 5:15, 5:16, 2:4, 2:5 - Calculate compound interest and depreciation, with and without a calculator 5:20, 5:23, 2:9

		<ul style="list-style-type: none"> - Calculate reverse percentages with and without a calculator 5:21, 5:22, 2:8
GCSE Shape <ul style="list-style-type: none"> - Revise basic angles facts: angles in a triangle and quadrilateral, on a straight line, around a point 3:5, 3:6 - Interior and exterior angles of regular polygons 7:26, 7:27 - Find angles in parallel lines with reasons (simple problems only) 3:7 	GCSE Shape <ul style="list-style-type: none"> - Revise basic angles facts 3:5, 3:6 - Interior and exterior angles of polygons, both irregular and interior angles 7:26, 7:27, 4:4 - Find angles in parallel lines with reasons 3:7, 3:8, 4:1 - Forming and solving equations from shapes, with angles and perimeter 	GCSE Shape <ul style="list-style-type: none"> - Revise basic angles facts 3:5, 3:6 - Interior and exterior angles of polygons, both irregular and interior angles 7:26, 7:27, 4:4 - Find angles in parallel lines with reasons 3:7, 3:8, 4:1 - Forming and solving equations from shapes, with angles and perimeter - Simple circle theorems (no alternate segment theorem and no complicated combinations) 6:23, 6:24
GCSE Linear Sequences <ul style="list-style-type: none"> - Continue a sequence 2:23, 2:24 - Find the first 5 terms from a given expression - Generate the nth term for a simple linear sequence 2:26, 2:27, 3:20 	GCSE Linear Sequences <ul style="list-style-type: none"> - Find the first 5 terms from a given expression - Generate the nth term for a linear sequence 2:26, 2:27, 3:20, 3:21 - Verifying if a term would be in a sequence / find any given term in the sequence 	GCSE Linear Sequences <ul style="list-style-type: none"> - Find the first 5 terms from a given expression - Generate the nth term for a linear sequence 2:26, 2:27, 3:20, 3:21 - Verifying if a term would be in a sequence / find any given term in the sequence
GCSE Transformations <ul style="list-style-type: none"> - Accurately perform the 4 transformations (not including negative and fractional enlargements or needing to describe the transformation) 7:1, 7:2, 7:3, 7:4, 7:6, 7:7, 6:12 	GCSE Transformations <ul style="list-style-type: none"> - Accurately perform the 4 transformations (not including negative and fractional enlargements) 6:13 Q2-4,6&8 - Describe the 4 transformations 7:5, 7:9, 6:13 Q1 	GCSE Transformations <ul style="list-style-type: none"> - Perform each of the 4 transformations (not including negative and fractional scale factors for enlargement) 6:13 Q2-4,6&8 - Describe each of the 4 transformations 7:5, 7:9, 6:13 Q1
DC2 – on everything so far with a focus on topics since DC1		

Half Term		
<p>GCSE Area and Perimeter</p> <ul style="list-style-type: none"> - Find the area and perimeter of simple shapes: rectangles, squares and triangles 3:25, 3:27 Q1-7, 3:30 Q1-6 - Find the area and perimeter of basic compound shapes 3:26, 3:27 Q8-16, 3:30 Q7-14 	<p>GCSE Similar Shapes</p> <ul style="list-style-type: none"> - Find the scale factor for two similar shapes (that are represented separately) - Use scale factor to find missing length on either of the two similar shapes (that are represented separately) 4:29 Q1-13 	<p>GCSE Similar Shapes</p> <ul style="list-style-type: none"> - Find the scale factor for two similar shapes - Use scale factor to find missing length on either of the two similar shapes (that are represented separately) 4:29 Q1-13
<p>Fractions</p> <ul style="list-style-type: none"> - Simplifying fractions by finding a common factor (not by halving) 5:5 Q10 -34 - Add and subtract fractions by finding a common denominator 5:9 - Multiply (no mixed numbers) 5:10 - Divide fractions (no mixed numbers) 5:10 - Finding fractions of amounts 5:8 - Mixed revision on all of the above 	<p>Fractions</p> <ul style="list-style-type: none"> - Simplifying fractions by finding a common factor (not by halving) 5:5 Q10 -34, 1:15 - Convert between improper fractions and mixed numbers 5:6 - Add and subtract fractions by finding a common denominator 5:9, 1:16 - Multiply fractions (including mixed fractions and cross cancelling) 5:10 - Divide fractions (including mixed fractions and cross cancelling)) 5:10, 1:17 Q3 - Finding fractions of amounts 5:8 - Mixed revision sheets on all of the above 1:16, 1:17 <p>Fractions questions in context using skills developed in this module</p>	<p>Fractions</p> <ul style="list-style-type: none"> - Simplifying fractions by finding a common factor (not by halving) 5:5 Q10 -34, 1:15 - Convert between improper fractions and mixed numbers 5:6 - Add and subtract fractions by finding a common denominator 5:9, 1:16 - Multiply fractions (including mixed fractions and cross cancelling) 5:10 - Divide fractions (including mixed fractions and cross cancelling)) 5:10, 1:17 Q3 - Finding fractions of amounts 5:8 - Mixed revision sheets on all of the above 1:16, 1:17 <p>Fractions questions in context using skills developed in this module</p>
<p>GCSE Trigonometry <i>With these groups it is perfectly reasonable to use a formula triangle approach</i></p> <ul style="list-style-type: none"> - Find unknown sides of right angled triangles (rounding to d.p) 7:34, 6:5 - Find unknown angles of right angled 	<p>GCSE Trigonometry (perhaps start with pythag revision)</p> <ul style="list-style-type: none"> - Find unknown sides of right angled triangles (rounding to d.p and s.f.) 7:34, 7:35, 7:36, 6:5, 6:6, 6:7 - Find unknown angles of right angled 	<p>GCSE Trigonometry (perhaps start with pythag revision)</p> <ul style="list-style-type: none"> - Find unknown sides of right angled triangles (rounding to d.p and s.f.) 7:34, 7:35, 7:36, 6:5, 6:6, 6:7 - Find unknown angles of right angled

triangles (rounding to d.p) 7:37, 6:8	triangles (rounding to d.p and s.f.) 7:37, 6:8	triangles (rounding to d.p and s.f.) 7:37, 6:8
GCSE Surface Area and Volume <ul style="list-style-type: none"> - Find the volume of prisms, not including cylinders or simple compound prisms 7:17 - Find the surface area of prisms (not including cylinders or compound prisms) 7:17 	GCSE Surface Area and Volume <ul style="list-style-type: none"> - Find the volume of prisms, including cylinders and simple compound prisms (rounding to d.p and s.f.) 7:17, 7:18, 4:23, 4:24 Q1-8 - Find the surface area of prisms (not including cylinders or compound prisms) 7:17, 7:18, 4:23, 4:24 Q1-8 	GCSE Surface Area and Volume <ul style="list-style-type: none"> - Find the volume of prisms, including cylinders and simple compound prisms (rounding to d.p and s.f.) 7:17, 7:18, 4:23, 4:24 Q1-8 - Find the surface area of prisms (not including cylinders or compound prisms) 7:17, 7:18, 4:23, 4:24 Q1-8
GCSE Averages <ul style="list-style-type: none"> - General revision of mean, median, mode and range 4:5, 4:6, 4:7, 4:8, 4:9, 8:3 - Calculate averages from discrete data represented in a frequency table (not the median) 4:10, 4:11, 8:4, 8:5 	GCSE Averages <ul style="list-style-type: none"> - Calculate averages from discrete data represented in a frequency table 4:10, 4:11, 8:4, 8:5 - Calculate averages from continuous data 	GCSE Averages <ul style="list-style-type: none"> - Calculate averages from discrete data represented in a frequency table 4:10, 4:11, 8:4, 8:5 - Calculate averages from continuous data
Easter Holidays		
Revision on all topics covered so far this year.		
DC3 on everything covered this year in week 2		
GCSE Pie Charts <ul style="list-style-type: none"> - Construct a pie chart from a frequency table 4:16 Q1-2 - Simple comparison and interpretation of pie charts 4:15 Q3-5, 8:2 Q8-14 	GCSE Pie Charts <ul style="list-style-type: none"> - Construct a pie chart from a frequency table 4:16 Q1-2 - Comparison and interpretation of pie charts 4:15 Q3-5, 8:2 Q8-14 	GCSE Pie Charts <ul style="list-style-type: none"> - Construct a pie chart from a frequency table 4:16 Q1-2 - Comparison and interpretation of pie charts 4:15 Q3-5, 8:2 Q8-14
GCSE Cumulative Frequency	GCSE Cumulative Frequency	GCSE Cumulative Frequency

<ul style="list-style-type: none"> - Construct a cumulative frequency diagram from a frequency table 8:13 Q4a, 5a, 6a, 7a, 8a - Estimate the median from the cumulative frequency graph 8:13 Q1a, 1b, 4b, 5b, 6b, 7b, 8b 	<ul style="list-style-type: none"> - Construct a cumulative frequency diagram from a frequency table 8:13 Q4a, 5a, 6a, 7a, 8a - Estimate the median from the cumulative frequency graph 8:13 Q1a, 1b, 4b, 5b, 6b, 7b, 8b 	<ul style="list-style-type: none"> - Construct a cumulative frequency diagram from a frequency table 8:13 Q4a, 5a, 6a, 7a, 8a - Estimate the median from the cumulative frequency graph 8:13 Q1a, 1b, 4b, 5b, 6b, 7b, 8b - Calculate quartiles and interquartile range 8:13 Q8c - Use the skills above to construct a box plot from the cumulative frequency graph 4:12
<p>GCSE Bearings</p> <ul style="list-style-type: none"> - Accurately measure a bearing 7:22 - Construct a bearing when given information 7:23, 7:24 	<p>GCSE Bearings</p> <ul style="list-style-type: none"> - Accurately measure a bearing 7:22 - Construct a bearing when given information 7:23, 7:24 - Determine bearing from B when bearing from A is given 	<p>GCSE Bearings</p> <ul style="list-style-type: none"> - Accurately measure a bearing 7:22 - Construct a bearing when given information 7:23, 7:24 - Determine bearing from B when bearing from A is given
<p>GCSE Probability</p> <ul style="list-style-type: none"> - General understanding of probability adding up to 1 10:8 - Simple probability questions (e.g. the probability of picking a yellow bead from a bag containing 10:5, 10:6, 9:4 	<p>GCSE Probability</p> <ul style="list-style-type: none"> - Complete a probability tree 10:2, 9:2 - Use a probability tree to answer simple problems (e.g. probability of failing your driving test twice) 10:10, 10:11, 9:9, 9:10 <p>Calculating expected frequency when given probability (e.g. Tom attempts to score a goal 50 times, if his probability of success is 0.4 how many goals should he expect to score?) 10:4, 9:5</p>	<p>GCSE Probability</p> <ul style="list-style-type: none"> - Complete a probability tree 10:2, 9:2 - Use a probability tree to answer simple problems (e.g. probability of failing your driving test twice) 10:10, 10:11, 9:9, 9:10 - Calculating expected frequency when given probability (e.g. Tom attempts to score a goal 50 times, if his probability of success is 0.4 how many goals should he expect to score?) 10:4, 9:5
Half Term		
<p>GCSE Small Topics</p>	<p>GCSE Small Topics</p>	<p>GCSE Small Topics</p>

<ul style="list-style-type: none"> - Construct a stem and leaf diagram 4:20, 8:8 - Interpret a stem and leaf diagram 4:20, 4:21, 8:9 	<ul style="list-style-type: none"> - Construct a stem and leaf diagram 4:20, 8:8 - Interpret a stem and leaf diagram 4:20, 4:21, 8:9 - Understanding speed, for example that 60mph = 60 miles in 1 hour - Using formulae speed = distance ÷ time 9:2 	<ul style="list-style-type: none"> - Construct a stem and leaf diagram 4:20, 8:8 - Interpret a stem and leaf diagram 4:20, 4:21, 8:9 - Understanding speed, for example that 60mph = 60 miles in 1 hour - Using formulae speed = distance ÷ time 9:2, 2:26 - Simple construction (angle bisector and perpendicular bisector) 3:15, 4:7 - Converting units involving area and volume (e.g. 8cm²= __mm²) 9:5
Revision and End of Year Exam		
Go over problematic topics from the end of year exam		
<p>GCSE GRAPHS Linear graphs Quadratics graphs</p>	<p>GCSE GRAPHS Revise linear graphs Quadratic graphs Cubic functions Reciprocal functions (e.g. $y=1/x$)</p>	<p>GCSE GRAPHS Revise linear graphs Revise quadratic graphs Revise $y=mx+c$ Cubic functions Reciprocal functions (e.g. $y=1/x$) Exponential functions Trigonometric functions</p>
END OF ACADEMIC YEAR		