

Year 7 Delta Mathematics 2018-2019



This booklet lists every objective you will cover this year.

To keep track of how well you have done, you need to self-assess your understanding of each objective once you have learnt it in lesson or practiced it for homework.




You should also use this booklet as a revision guide to help you prepare for your three termly assessments this year. Your assessments will be on the following dates:

Assessment	Units to be covered	Approximate date
Autumn	1 & 2	Between 12/11 and 28/11
Spring	3 - 6	Between 25/02 and 13/03
End of year	1 - 9	Between 17/06 and 28/06




Tips for revision

- Pick an objective that you did not understand. Eg. You ticked ☹️ or 😐
- Watch the mathswatch clip associated with this objective, pausing to answer the in clip questions
- Answer some interactive questions on mathswatch to get instant feedback
- Repeat this process
- Ask other students in your form
- Attend maths drop-in session

Unit 1 – Analysing and displaying data




	Objective	Strand	Step	MW	Key Question			
1	Use two-way tables	Statistics	2	P4	Ex 1.1 Q2			
2	Interpret and draw dual bar charts and compound bar charts	Statistics	5	S2a	Ex 1.1 Q4			
3	Choose the most appropriate average for a set of data	Statistics	3	S2b	Ex 1.2 Q7			
4	Find the mode, mean, median and range of a set of data	Statistics	4	S6 S7	Ex 1.2 Q1			
5	Compare sets of data using averages and range	Statistics	6		Ex 1.2 Q8			
6	Group discrete and continuous data	Statistics	4	S3 S4	Ex 1.3 Q1, 4			
7	Draw and interpret grouped frequency diagrams	Statistics	5	S5	Ex 1.3 Q5			
8	Interpret and draw line graphs	Statistics	4		Ex 1.4 Q2			
9	Recognise when a graph is misleading	Statistics	6		Ex 1.4 Q6			
10	Draw and interpret pie charts	Statistics	6	S9	Ex 1.5 Q3, 4			
11	Interpret and draw scatter graphs	Statistics	5	S8	Ex 1.6 Q4			
12	Describe correlation between two sets of data	Statistics	7	S8	Ex 1.6 Q3			
13	Draw a line of best fit and use it to estimate values	Statistics	6	S8	Ex 1.6 Q5			

Unit 2 – Number skills




	Objective	Strand	Step	MW	Key Question			
1	Understand the difference between factors, multiples and primes	N	4	N10, N11, N30a	Ex 2.1 Q1, 3			
2	Find all the factor pairs of any whole number	N	S1	N10	Ex 2.1 Q5			
3	Find the HCF and LCM of two numbers	N	5	N31a, N31b	Ex 2.1 Q7, 11			
4	Add, subtract, multiply and divide positive and negative numbers	N	5	N19a, N19b	Ex 2.2 Q4, 6, 10, 13			
5	Use mental and written strategies for multiplication	N	4	N15a, N28a	Ex 2.3 Q4, 5			
6	Divide a 3 digit integer by a single or 2 digit integer	N	5	N16, N29a	Ex 2.3 Q7, 8			

7	Use index notation for squares and square roots	N	4	N25	Ex 2.4 Q7			
8	Calculate with squares and square roots	N	5	N25	Ex 2.4 Q4, 5			
9	Carry out calculations involving squares, cubes, square roots and cube roots	N	5		Ex 2.5 Q8, 9, 10, 11			
10	Use factorising to work out square roots and cube roots	N	6		Ex 2.5 Q7			
11	Solve word problems using square roots and cube roots	N	6		Ex 2.5 Q5			
12	Estimate answers to complex calculations	N	5	N43a, N43b	Ex 2.6 Q5			
13	Carry out calculations involving brackets	N	6	N20	Ex 2.6 Q7, 9			

Unit 3 - Equations, functions and formulae




	Objective	Strand	Step	MW	Key Question			
1	Simplify expressions by collecting like terms	A	5	A7a	Ex 3.1 Q2			
2	Construct expressions using four operations	A	5	A3	Ex 3.2 Q6			
3	Substitute into formulae	A	5	A10	Ex 3.3 Q1			
4	Derive formulae from a description	A	5	A17	Ex 3.4 Q6			
5	Expand expressions involving brackets	A	5	A8	Ex 3.5 Q8			
6	Substitute into expressions involving powers	A	6		Ex 3.5 Q12			
7	Factorise an algebraic expression	A	6	A9	Ex 3.6 Q9			

Unit 4 - Fractions




	Objective	Strand	Step	MW	Key Question			
1	Compare and simplify fractions	N	5	N23b, N23c	Ex 4.1 Q3			
2	Write one number as a fraction of another	R	4	R3	Ex 4.1 Q9			
3	Work out simple fractions of amounts	N	5	N33	Ex 4.2 Q13			
4	Write an improper fraction as a mixed number	N	4	N35	Ex 4.2 Q6			
5	Add and subtract fractions	N	5	N36	Ex 4.2 Q8			
6	Work with equivalent fractions, decimals and percentages	N	5	N32	Ex 4.3 Q1, 4			

7	Use division to write a fraction as a decimal	N	6		Ex 4.3 Q7			
8	Work out fractions of amounts	N	5	N33	Ex 4.4 Q3			
9	Divide an integer and a fraction by a fraction	N	6	N37b, N42b	Ex 4.4 Q6			
10	Multiply a fraction by a fraction	N	7	N37a, N42a	Ex 4.4 Q9			
11	Add and subtract mixed numbers	N	5	N41	Ex 4.5 Q1, 2			
12	Enter time as a mixed number into a calculator	N	5		Ex 4.5 Q4			
13	Multiply and divide a mixed number by a fraction	N	7	N42a, N42b	Ex 4.5 Q10, 12			

Unit 5 - Angles & Shapes




	Objective	Strand	Step	MW	Key Question			
1	Work out unknown angles when two or more lines meet or cross at a point	G&M	4	G13	Ex 5.1 Q5			
2	Work out unknown angles involving parallel lines	G&M	5	G18	Ex 5.1 Q7, 9			
3	Describe the line and rotational symmetry of triangles	G&M	4	G3, G7	Ex 5.2 Q2			
4	Understand how to prove that a result is true	G&M	6		Ex 5.2 Q3			
5	Use the properties of a triangle to work out unknown angles	G&M	5	G17	Ex 5.2 Q4, 5, 7			
6	Use the properties of isosceles and equilateral triangles to solve problems	G&M	6	G16	Ex 5.2 Q11, 12			
7	Describe the line and rotational symmetry of quadrilaterals	G&M	4	G3, G7	Ex 5.3 Q2			
8	Describe the properties of quadrilaterals	G&M	5	G14	Ex 5.3 Q3			
9	Solve problems involving quadrilaterals	G&M	5		Ex 5.3 Q12			
10	Work out the interior and exterior angles of a polygon	G&M	6	G19	Ex 5.3 Q5, 9, 12			

Unit 6 - Decimals




	Objective	Strand	Step	MW	Key Question			
1	Write decimals in ascending and descending order	N	5	N2b	Ex 6.1 Q5, 6			
2	Round to decimal places	N	5	N27b	Ex 6.2 Q3, 6			

3	Add and subtract decimals	N	5	N13b N14b	Ex 6.3 Q5, 7, 11			
4	Multiply a decimal by an integer	N	6	N17b N15b	Ex 6.4 Q4			
5	Use place value to multiply decimals	N	6	N28b N40a	Ex 6.4 Q8			
6	Divide a decimal by a whole number	N	5	N29b	Ex 6.5 Q4			
7	Divide a number by a decimal	N	6	N40b	Ex 6.5 Q7, 11			
8	Convert between fractions, decimals and percentages	N	5	N32 177	Ex 6.6 Q2, 7, 10, 17			
9	Compare different proportions using percentages	R	6	N39a N39b	Ex 6.6 Q18			
10	Calculate percentages with and without a calculator	N	4	N24b 86 87	Ex 6.7 Q2, 4			
11	Calculate percentage increases and decreases	R	6	R9a R9b	Ex 6.7 Q6, 7, 11, 14			
12	Work backwards to solve a percentage problem	R	6	110	Ex 6.7 Q15, 16			

Unit 7 – Equations




	Objective	Strand	Step	MW	Key Question			
1	Write and solve simple equations	A	4	A12	Ex 7.1 Q8			
2	Solve problems using equations	A	5		Ex 7.1 Q13			
3	Write and solve two-step equations	A	5	A17	Ex 7.2 Q6, 10			
4	Write and solve equations that have brackets	A	6	A19a	Ex 7.2 Q6h			
5	Write and solve simple equations with letters on both sides	A	6	A19b	Ex 7.3 Q3, 7			
6	Solve equations that include x^2 and x^3	A	7		Ex 7.4 Q4			
7	Use trial and improvement to find solutions to 1 decimal place	A	6	A16 A25	Ex 7.4 Q8			

Unit 8 – Multiplicative reasoning




	Objective	Strand	Step	MW	Key Question			
1	Convert between metric and imperial units	R	5	R2	Ex 8.1 Q7			

2	Write a ratio in its simplest form	R	4	R1a R5a	Ex 8.2 Q10, 12			
3	Simplify a ratio expressed in fractions or decimals	R	5		Ex 8.2 Q18			
4	Share a quantity in 2 or more parts in a given ratio	R	5	R5b	Ex 8.3 Q4, 11			
5	Understand the relationship between ratio and proportion	R	5		Ex 8.4 Q4			
6	Solve simple word problems involving ratio and direct proportion	R	5	R8	Ex 8.5 Q3			
7	Solve simple word problems involving ratio and inverse proportion	R	6	R13	Ex 8.5 Q6			
8	Solve problems involving ratio and proportion using the unitary method	R	6		Ex 8.6 Q4			
9	Write ratios in the form 1:n	R	5		Ex 8.6 Q12			
10	Solve best buy problems	R	6	R4	Ex 8.6 Q18			

Unit 9 – Perimeter, Area and Volume

	Objective	Strand	Step	MW	Key Question			
1	Calculate the areas of triangles, parallelograms and trapeziums	G&M	5-6	G20b, c, d	Ex 9.1 Q5, 7, 12			
2	Calculate the area and perimeter of shapes made from rectangles and triangles	G&M	5	G24	Ex 9.2 Q7			
3	Identify nets of different 3D solids	G&M	4	G12c	Ex 9.3 Q4			
4	Know the properties of 3D solids	G&M	5	G12a	Ex 9.3 Investigation			
5	Calculate the surface area of cubes and cuboids	G&M	6	G21b	Ex 9.4 Q7			
6	Calculate the volume of a cube or a cuboid	G&M	6	G21a	Ex 9.5 Q7			
7	Convert between cm ³ , ml and litres	G&M	6	112	Ex 9.5 Q8			
8	Convert between metric measures for area and volume	G&M	5		Ex 9.6 Q6, 10			

Unit 10 – Sequences & Graphs

	Objective	Strand	Step	MW	Key Question			
1	Work out the terms of an arithmetic sequence using the term to term rule	A	4	A11a	Ex 10.1 Q7			
2	Work out a given term in a simple arithmetic sequence	A	5	A11a	Ex 10.1 Q10			
3	Work out and use expressions for the nth term of an arithmetic sequence	A	5	A11b, A11c	Ex 10.2 Q11, 12, 13			
4	Generate sequences and predict how they will continue	A	5	A11b	Ex 10.3 Q3			
5	Recognise geometric sequences and work out the term-to-term rule	A	6	163	Ex 10.3 Q7, 8			
6	Use positive and negative coordinates	A	4	A1a, A1b	Ex 10.4 Q4, 5			
7	Work out the midpoint of a line segments	A	6	133	Ex 10.4 Q8			
8	Draw straight line graphs	A	6	A14a	Ex 10.5 Q9			
9	Recognise straight line graphs parallel to the axes	A	4	A5	Ex 10.5 Q5, 13			
10	Recognise graphs of $y = x$ and $y = -x$	A	5		Ex 10.5 Q12, 13			