

Year 8 Delta Mathematics 2018-2019



This booklet lists every objective 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 04/03 and 20/03
End of year	1 - 9	Between 10/06 and 21/06




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 - Factors and powers

	Objective	Strand	Step	MW	Key Question			
1	Write the prime factor decomposition of a number	N	4	N30b	Ex 1.1 Q5			
2	Use prime factor decomposition to find the HCF and LCM of two numbers	N	6	N31	Ex 1.1 Q2			
3	Work out the laws of indices for positive powers	N	6	29				
4	Show that any number to the power of zero is 1	N	7					
5	Use the laws for indices for multiplying and dividing	N	8	29	Ex 1.2 Q5,8			
6	Use and understand powers of 10	N	6	N17	Ex 1.3 Q3			
7	Use the prefixes associated with powers of 10	N	6		Ex 1.3 Q5			
8	Understand the effect of multiplying and dividing by any integer power of 10	N	7	N17	Ex 1.3 Q2			
9	Calculate with powers	N	7	82	Ex 1.4 Q5			
10	Round to a number of significant figures	N	6	N38	Ex 1.4 Q10			




Unit 2 - Working with powers

	Objective	Strand	Step	MW	Key Question			
1	Simplify expressions involving powers and brackets	A	6	A7	Ex 2.1 Q8, 10 Ex 2.3 Q6			
2	Understand The meaning of an identity	A						
3	Use the index laws in algebraic calculations and expressions	A	7	82	Ex 2.2 Q5			
4	Simplify expressions with powers	A	8	A7, 34	Ex 2.2 Q7			
5	Factorise an algebraic expression	A	7	A9	Ex 2.3 Q10			
6	Substitute integers into expressions	A	7	A10	Ex 2.4 Q4			
7	Construct and solve equations	A	7	A17 A19	Ex 2.4 Q11,12			




Unit 3 – 2D and 3D solids

	Objective	Strand	Step	MW	Key Question			
1	Use 2D representations of 3D solids	G&M	5		Ex 3.1 Q4			
2	Sketch nets of 3D solids	G&M	7	G12c	Ex 3.2 Q2,5			
3	Calculate the surface area of prisms	G&M	7	G25b	Ex 3.2 Q2,5			
4	Calculate the volume of right prisms	G&M	7	G25a	Ex 3.3 Q3,4			
5	Name different parts of a circle	G&M	6	G2	Ex 3.4 Q3			
6	Calculate the circumference	G&M	6	G22a	Ex 3.4 Q5			
7	Calculate the radius or diameter when you know the circumference	G&M	7		Ex 3.4 Q14,15			
8	Calculate the area of a circle	G&M	6	G22b	Ex 3.5 Q4			
9	Calculate the radius or diameter when you know the area	G&M	7		Ex 3.5 Q10			
10	Calculate the volume and surface area of a cylinder	G&M	8	G25a	Ex 3.6 Q6,7			
11	Use Pythagoras' theorem in right-angled triangles	G&M	7	G30	Ex 3.7 Q4,6,8			




Unit 4 – Real life graphs

	Objective	Strand	Step	MW	Key Question			
1	Recognise when values are in direct proportion	R	6	R8	Ex 4.1 Q6 Disc			
2	Plot graphs and read values to solve problems	A	6	A21b	Ex 4.1 Q1			
3	Interpret graphs from different sources	A	6		Ex 4.2 Q2,4			
4	Understand financial graphs	A	5		Ex 4.2 Q5			
5	Draw and interpret distance-time graphs	A	6	A21a	Ex 4.3 Q4			
6	Use distance-time graphs to solve problems	A	6		Ex 4.3 Q9			
7	Interpret graphs that are curved	R	7	A28	Ex 4.4 Q4,7			
8	Interpret real-life graphs	R	7	A21b	Ex 4.4 Q8			
9	Understand when graphs are misleading	A	7		Ex 4.5 Q2,4			

Unit 5 - Transformations




	Objective	Strand	Step	MW	Key Question			
1	Describe and carry out translations	G&M	4	50	Ex 5.1 Q2, 8			
2	Describe and carry out reflections	G&M	4	48	Ex 5.1 Q3, 5			
3	Describe and carry out rotations	G&M	5	49	Ex 5.2 Q4, 6			
4	Enlarge a shape	G&M	5	148	Ex 5.3 Q5			
5	Describe an enlargement	G&M	6	148	Ex 5.3 Q6			
6	Enlarge a shape using a negative scale factor	G&M	7	181a, 181b	Ex 5.4 Q2			
7	Enlarge a shape using a fractional scale factor	G&M	7	148	Ex 5.4 Q3			
8	Transform 2D shapes using a combination of reflection, rotation, enlargement and translation	G&M	7	182	Ex 5.5 Q7, 8			
9	Identify planes of reflection symmetry in 3D solids	G&M	6	11	Ex 5.6 Q4			
10	Find the perimeter and area of 2D shapes after enlargements	G&M	6	144, 200	Ex 5.6 Q5, 9			
11	Find the volume of 3D solids after enlargements	G&M	9	200	Ex 5.6 Q11			

Unit 6 - Fractions, Decimals and Percentages




	Objective	Strand	Step	MW	Key Question			
1	Recognise fractional equivalents to some recurring decimals	N	5	177	Ex 6.1 Q10, 11			
2	Change a recurring decimal into a fraction	N	7	189	Ex 6.1 Q12, 13			
3	Calculate percentages	R	6	N24b, R9a, R9b	Ex 6.2 Q6			
4	Work out an original quantity before a percentage increase or decrease	R	7	110	Ex 6.2 Q10, 11			
5	Calculate percentage change	R	8	109	Ex 6.3 Q4, 8			

6	Calculate the effect of repeated percentage changes	R	9	164	Ex 6.4 Q5, 8			
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Unit 7 – Construction and Loci




	Objective	Strand	Step	MW	Key Question			
1	Draw triangles accurately using a ruler and protractor	G&M	4	47	Ex 7.1 Q4, 6			
2	Draw diagrams to scale	G&M	5	G15	Ex 7.1 Q12			
3	Draw accurate nets of 3D solids	G&M	6	G12c	Ex 7.2 Q2			
4	Construct triangles using a ruler and compasses	G&M	6	147	Ex 7.2 Q3			
5	Bisect a line using a ruler and compasses	G&M	6	G26a	Ex 7.3 Q4			
6	Construct perpendicular lines using a ruler and compasses	G&M	7	G26b, 146b	Ex 7.3 Q7, 9			
7	Bisect angles using a ruler and compasses	G&M	6	G26c	Ex 7.4 Q4			
8	Draw accurate diagrams to solve problems	G&M	7		Ex 7.4 Q7			
9	Draw a locus	G&M	6	G27	Ex 7.5 Q4, 5			
10	Use loci to solve problems	G&M	7	G27	Ex 7.5 Q7, 10			

Unit 8 – Probability




	Objective	Strand	Step	MW	Key Question			
1	Calculate and compare probabilities	P	5	P2b	Ex 8.1 Q9			
2	Decide if a game is fair	P	4		Ex 8.1 Q8			
3	Identify mutually exclusive outcomes and events	P	6	P3	Ex 8.2 Q6			
4	Find the probabilities of mutually exclusive outcomes and events	P	6	P3	Ex 8.2 Q7			
5	Find the probability of an event not happening	P	4	P3	Ex 8.2 Q12			
6	Calculate the relative frequency of a value	P	4	P7	Ex 8.3 Q3			
7	Use relative frequency to make estimates	P	5	P7	Ex 8.3 Q3			
8	Use relative frequency to estimate the probability of an event	P	5	P7	Ex 8.3 Q8			

9	Use estimated probability to calculate expected frequencies	P	5	P7	Ex 8.3 Q8			
10	Carry out a probability experiment	P	6		Ex 8.4 Inv			
11	Estimate probability using data from an experiment	P	6		Ex 8.4 Q7			
12	Work out the expected results when an experiment is repeated	P	7		Ex 8.4 Q7			
13	List all the possible outcomes of one or two events in sample space diagrams or Venn diagrams	P	5	P4, P5	Ex 8.5 Q3			
14	Calculate probabilities of repeated events	P	6		Ex 8.5 Q4			
15	Use tree diagrams to find the probabilities of two or more events	P	9	151 (GCSE)	Ex 8.6 Q6			

Unit 9 – Scale drawings & Measures

	Objective	Strand	Step	MW	Key Question			
1	Use scales in maps and plans	R	6	R6	Ex 9.1 Q5			
2	Use and interpret maps	G&M	7	R6	Ex 9.1 Q6			
3	Measure and use bearings	G&M	5	124	Ex 9.2 Q5			
4	Draw diagrams to scale using bearings	G&M	7	124	Ex 9.2 Q8, 9			
5	Draw diagrams to scale	G&M	6	G15	Ex 9.3 Q5			
6	Use and interpret scale drawings	G&M	7	G15	Ex 9.3 Q6			
7	Identify congruent and similar shapes	G&M	6	G31	Ex 9.4 Q3, 5			
8	Use congruence to solve problems in triangles and quadrilaterals	G&M	7	G31	Ex 9.4 Q6, 7			
9	Use similarity to solve problems in 2D shapes	G&M	8	R10	Ex 9.5 Q2, 5, 7			

Unit 10 - Graphs

	Objective	Strand	Step	MW	Key Question			
1	Plot straight-line graphs	A	6	A14a	Ex 10.1 Q3, 5			
2	Find the y-intercept of a straight-line graph	A	6		Ex 10.1 Q7			
3	Find the gradient of a straight-line graph	A	6	A14b	Ex 10.2 Q3			
4	Plot graphs using the gradient and y-intercept	A	7		Ex 10.2 Q7			
5	Use $y = mx + c$	A	7	A14a	Ex 10.3 Q8			
6	Find the equation of a straight-line graph	A	7	A14c	Ex 10.3 Q5			
7	Identify parallel and perpendicular lines	A	8	208	Ex 10.4 Q4, 10			
8	Find the inverse of a linear function	A	7		Ex 10.5 Q5, 6			
9	Plot and use non-linear graphs	A	8	A21a, A21b	Ex 10.6 Q4			