

Year 7 Theta 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	Find the mode of a set of data, numerical & non numerical	S	2	S6	Ex1.1 Q4			
2	Find the median of a set of data (odd and even number of values)	S	4	S6	Ex 1.1 Q8,9			
3	Find the range of a set of data	S	3	S6	Ex 1.1 Q3			
4	Read and draw pictograms, bar charts and bar-line charts	S	3	S1a,S1b, S2a,S2b, 64	Ex1.2 Q3,7,10			
5	Read and construct tally charts and frequency tables	S	3	S3, 15	Ex1.2 Q9			
6	Read the mode and range from a chart or table	S	3	S10a	Ex1.2 Q7			
7	Read and construct grouped tally charts and frequency tables	S	4	S4	Ex1.3 Q3			
8	Read and construct grouped bar charts for discrete and continuous data	S	4		Ex1.3 Q6,7			
9	Find the modal class from a bar chart or frequency table	S	3	S10a	Ex1.3 Q5			
10	Calculate the mode, median, mean and range of a set of data	S	4	S6	Ex1.4 Q6			
11	Compare two sets of data using an average and the range	S	4		Ex1.4 Q10			
12	Read and draw a line graph	S	4	96	Ex1.5 Q5			
13	Read and draw a dual bar chart	S	5		Ex 1.5 Q7			
14	Read and draw a compound bar chart	S	5		Ex 1.5 Q9			
15	Enter data into a spreadsheet programme	S	2		Ex1.5 Q4			
16	Use a spreadsheet to calculate the mean, mode, median and range	S	4		Ex1.5 Q4			
17	Use a spreadsheet to draw bar charts, dual bar charts, compound bar charts, grouped bar charts and line graphs	S	4		Ex1.5 Q6,7			

Unit 2 – Number Skills




	Objective	Strand	Step	MW	Key Question			
1	Use the priority of operations, including brackets	Number	4	N20	Ex2.1 Q4			
2	Use multiplication facts up to 10 x 10 and the laws of arithmetic to do mental multiplication and division	Number	3	N5, N6, N15a	Ex2.1 Q10			
3	Multiply and divide by 10, 100 and 1000	Number	3	N17a, N17b	Ex2.1 Q9			
4	Round whole numbers to the nearest 10, 100 and 1000	Number	3	N27a	Ex2.2 Q1,4,5			
5	Make an estimate to check an answer	Number	4	N43a, N43b	Ex2.2, Q9			
6	Use a written method to add and subtract whole numbers of any size	Number	2	N3b, N4b, N13a, N14a	Ex2.2 Q9,11			
7	Use a written method to multiply whole numbers	Number	3	N15a, N28a	Ex2.3 Q3,8			
8	Use a written method to divide whole numbers	Number	4	N16a, N29a	Ex2.3 Q3,4			
9	Use inverse operations to check an answer	Number	4		Ex2.4 Q6			
10	Round decimals to the nearest whole number	Number	4		Ex2.5 Q3			
11	Interpret the display on a calculator in different contexts	Number	3	N44	Ex2.5 Q10			
12	Use a calculator to solve problems involving time and money	Number	4	N44	Ex2.5 Q8			
13	Order positive and negative numbers	Number	3	N2a	Ex2.6 Q4			
14	Add and subtract positive and negative numbers	Number	4	N19a				
15	Begin to multiply with negative numbers	Number	4	N19b	Ex2.6 Q12			
16	Use a calculator to explore divisibility	Number			Ex2.7 Q4			
17	Find all the factor pairs of any whole number	Number	3	N10	Ex2.7 Q8a			
18	Identify common factors, the HCF and the LCM	Number	3	N31a, N31b	Ex2.7 Q11			
19	Recognise prime numbers	Number	3	N30a	Ex2.7 Q8			
20	Recognise square numbers and triangle numbers	Number	4		Ex2.8, Q5,7			
21	Use a calculator to find squares and square roots	Number	4	N25	Ex2.8 Q8			
22	Use the priority of operations, including powers	Number	4	N20	Ex2.8 Q10			

23	Use index notation for powers	Number	4	N25	Ex2.8 Q11			
24	Do mental calculations with squares and roots	Number	4	N25	Ex2.8 Q6			

Unit 3 – Expressions, Functions & Formulae




	Objective	Strand	Step	MW	Key Question			
1	Find outputs of simple functions written in words and using symbols	A	2		Ex3.1 Q4			
2	Describe simple functions in words	A	3		Ex3.1 Q5			
3	Simplify simple linear algebraic expressions by collecting like terms	A	3	A6	Ex3.2 Q4			
4	Use arithmetic operations with algebra	A	4	A6	Ex3.2 Q6			
5	Use brackets with numbers and letters	A	3					
6	Simplify more complicated expressions by collecting like terms	A	4	A6	Ex3.3 Q5			
7	Write expressions from word descriptions using addition, subtraction and multiplication	A	4	A3	Ex3.4 Q5			
8	Write expressions to represent function machines	A	4		Ex3.4 Q6			
9	Substitute positive integers into simple formulae written in words	A	3	A3	Ex3.5 Q4			
10	Substitute integers into formulae written in letter symbols	A	4		Ex3.5 Q8			
11	Identify variables and use letter symbols	A	4		Ex3.5 Q3			
12	Write simple formulae using letter symbols	A	4		Ex3.5 Q3			
13	Identify formulae and functions	A	4		Ex3.5 Q8			
14	Identify the unknowns in a formula and a function	A	4		Ex3.5 Q3			

Unit 4 – Decimals and Measures

	Objective	Strand	Step	MW	Key Question			
1	Measure and draw lines to the nearest millimetre	N	2		Ex4.1 Q4			
2	Write decimals in order of size	N	3	N2b	Ex4.1 Q7			
3	Round decimals to the nearest whole number and to one decimal place	N	4		Ex4,1 Q8,9			
4	Round decimals to make estimates and approximations of calculations	N	4		Ex41. Q10			
5	Convert measurements into the same unit to compare them	G & M	4	N7a	Ex4.2 Q4			
6	Solve simple problems involving units of measurements in the context of length	G & M	4	N7a	Ex4.2 Q6			
7	Convert between metric units of length, mass and capacity	G & M	4	N7a, R2	Ex4.2 Q9			
8	Read scales on a range of measuring equipment	G & M	3	N8	Ex4.3 Q4			
9	Interpret the display on a calculator in different contexts	G & M	3		Ex4.3 Q7			
10	Interpret metric measures displayed on a calculator	G & M	4		Ex4.3 Q9			
11	Plot and read coordinates in all four quadrants	A	4	A1b	Ex4.3 Q12			
12	Multiply decimals mentally	N	4	N15b, N40a	Ex4.4 Q3			
13	Check a result by considering whether it is the right order of magnitude	N	4	N40a	Ex4.4 Q7			
14	Understand where to position the decimal point by considering equivalent calculations	N	4	N15b	Ex4.4 Q10			
15	Add and subtract decimals	N	4	N13b, N14b	Ex4.5 Q5			
16	Multiply and divide decimals by single digit whole numbers	N	5	N15b	Ex4.5 Q7,9			
17	Work out the perimeter of shapes	G & M	3	G8a, G8b	Ex4.6 Q6			
18	Solve perimeter problems	G & M	5	G8b	Ex4.6 Q9			
19	Find areas by counting squares	G & M	2	G9	Ex4.7 Q3			




20	Calculate the areas of squares and rectangles	G & M	3	G20a	Ex4.7 Q5			
21	Calculate the areas of shapes made from rectangles	G & M	4	G24	Ex4.7 Q8			
22	Solve problems involving area	G & M	4		Ex4.7 Q10			
23	Choose suitable units to estimate length and area	G & M	3		Ex4.8 Q4			
24	Use units of measurement to solve problems	G & M	5		Ex4.8 Q5			
25	Use metric and imperial units	G & M	4	N7a, R2	Ex4.8 Q11			

Unit 5 – Fractions




	Objective	Strand	Step	MW	Key Question			
1	Use fraction notation to describe parts of a shape	Number	3	N23a	Ex 5.1 Q2			
2	Compare simple fractions	Number	3	N23a	Ex 5.1 Q8			
3	Use a diagram to compare two or more simple fractions	Number	3		Ex 5.1 Q12			
4	Change an improper fraction to a mixed number	Number	4	N35	Ex 5.2 Q6			
5	Identify equivalent fractions	Number	3	N23b	Ex 5.2 Q6			
6	Simplify fractions by cancelling common factors	Number	3	N23c	Ex 5.2 Q7			
7	Add and subtract simple fractions	Number	3	N36	Ex 5.3 Q4			
8	Calculate simple fractions of quantities	Number	4	R3	Ex 5.3 Q8			
9	Work with equivalent fractions and decimals	Number	4		Ex 5.4 Q3			
10	Write one number as a fraction of another	Number	3	N42a	Ex 5.4 Q10			
11	Understand percentage as 'the number of parts per 100'	Number	2	N24a	Ex5.5 Q3			
12	Convert a percentage to a number of hundredths of tenths	Number	3	N32	Ex5.5 Q5			
13	Work with equivalent percentages, fractions and decimals	Number	3	N32	Ex 5.5 Q9			
14	Use different strategies to calculate with percentages	Number	4		Ex 5.6 Q12			

15	Express one number as a percentage of another	Number	5	N24b	Ex 5.6 Q8			
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Unit 6 – The Language of Probability




	Objective	Strand	Step	MW	Key Question			
1	Use the language of probability	Number	3	P1	Ex6.1 Q3			
2	Use a probability scale with words	Number	3	P1	Ex6.1 Q4			
3	Understand the probability scale from 0 to 1	Number	4	P1	Ex 6.1 Q7			
4	Identify outcomes and equally likely outcomes	Number	4	P1	Ex 6.2 Q4			
5	Calculate probabilities	Number	4	59	Ex 6.2 Q8			
6	Use a probability scale from 0 to 1	Number	4	P1	Ex 6.1 Q7			
7	Calculate more complex probabilities	Number			Ex 6.3 Q4			
8	Calculate the probability of an event not happening	Number	5	P1	Ex 6.3 Q5			
9	Record data from a simple experiment	Number	3	125	Ex 6.4 Q4			
10	Estimate probability based on experimental data	Number	4	125	Ex 6.4 Q7			
11	Make conclusions based on the results of an experiment	Number	4	125	Ex 6.4 Q10			
12	Use probability to estimate the number of expected wins in a game	Number	5	125	Ex 6.5 Q4			
13	Apply probabilities from experimental data in simple situations	Number	5	125	Ex 6.5 Q8			

Unit 7 – Writing Ratios

	Objective	Strand	Step	MW	Key Question			
1	Use direct proportion in simple contexts	Ratio	4	R8	Ex 7.1 Q3			
2	Solve simple problems involving direct proportion	Ratio	5	R8	Ex 7.1 Q4			
3	Use the unitary method to solve simple word problems involving direct proportion	Ratio	5	R8	Ex 7.1 Q9			
4	Use ratio notation	Ratio	4	R1a	Ex 7.2 Q4			
5	Reduce a ratio to its simplest form	Ratio	5	R5a	Ex 7.2 Q7			
6	Reduce a three part ratio to its simplest form by cancelling	Ratio	5	R5a	Ex 7.2 Q11			




7	Divide a quantity into two parts in a ratio given in words	Ratio	3	R5b	Ex 7.3 Q3			
8	Divide a quantity into two parts in a given ratio	Ratio	4	R5b	Ex 7.3 Q5			
9	Solve word problems involving ratio	Ratio	5	R5b	Ex 7.3 Q11			
10	Use ratios and measures	Ratio	5	R5b	Ex 7.4 Q5			
11	Use fractions to describe and compare proportions	Ratio	4		Ex 7.5 Q2			
12	Understand and use the relationship between ratio and proportion	Ratio	5		Ex 7.5 Q12			
13	Use percentages to describe proportions	Ratio	5		Ex 7.6 Q7			
14	Use percentages to compare simple proportions	Ratio	5		Ex 7.6 Q9			
15	Understand and use the relationship between ratio and proportion	Ratio	5					

Unit 8 - Lines and Angles




	Objective	Strand	Step	MW	Key Question			
1	Describe and label lines, angles and triangles	G&M	2		Ex 8.1 Q2			
2	Identify angle, side and symmetry properties of triangles	G&M	3	G3	Ex 8.1 Q9			
3	Use a protractor to measure and draw angles	G&M	4	G10b, G10c	Ex 8.2 Q4			
4	Estimate the size of angles	G&M	3		Ex 8.2 Q6			
5	Solve problems involving angles	G&M	4	G17, G18	Ex 8.2 Q8			
6	Use a ruler and a protractor to draw triangles accurately	G&M	5		Ex 8.3 Q5			
7	Solve problems involving angles and triangles	G&M	5	G17	Ex 8.4 Q5			
8	Use the rule for angles on a straight line, angles around a point and vertically opposite angles	G&M	4		Ex 8.4 Q11			
9	Solve problems involving angles	G&M	4	45	Ex 8.5 Q1			
10	Use the rule for the sum of angles in a triangle	Number	3		Ex 8.5 Q5			
11	Calculate interior and exterior angles	G&M	4		Ex 8.5 Q9			
12	Solve angle problems involving triangles	G&M	4	G17	Ex 8.5 Q10			
13	Identify and name types of quadrilaterals	G&M	4	G14	Ex 8.6 Q3			
14	Use the rule for the sum of angles in a quadrilateral	G&M	5		Ex 8.6 Q8			

15	Solve angle problems involving quadrilaterals	G&M	5		Ex 8.6 Q9			
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Unit 9 – Sequences and Graphs

	Objective	Strand	Step	MW	Key Question			
1	Recognise, describe and continue number sequences	Algebra	3	A11a	Ex 9.1 Q4			
2	Generate terms of sequence using a term-to-term rule	Algebra	4	A11a	Ex 9.1 Q8			
3	Find missing terms in a sequence	Algebra	2	A11b	Ex 9.1 Q12			
4	Find patterns and rules in sequences	Algebra	4		Ex 9.2 Q1			
5	Describe how a pattern sequence grows	Algebra	4		Ex 9.2 Q4			
6	Write and use number sequences to model real-life problems	Algebra	4		Ex 9.2 Q7			
7	Generate and plot coordinates from a rule	Algebra	5	A1b	Ex 9.3 Q3			
8	Solve problems and spot patterns in coordinates	Algebra	4	A1b	Ex 9.3 Q5			
9	Find the midpoint of a line segment	Algebra	5	133	Ex 9.3 Q6			
10	Describe and continue special sequences	Algebra	4	A22	Ex 9.4 Q3			
11	Use the term-to-term rule to work out more terms in a sequence	Algebra	4	A23a	Ex 9.4 Q7			
12	Recognise an arithmetic sequence	Algebra	4		Ex 9.4 Q9			
13	Recognise, name and plot graphs parallel to the axes	Algebra	4	A14a	Ex 9.5 Q4			
14	Recognise, name and plot the graphs of $y=x$ and $y=-x$	Algebra	5	A14a	Ex 9.5 Q6			
15	Plot straight-line graphs using a table of values	Algebra	4	A14a	Ex 9.5 Q9			
16	Draw graphs to represent relationships	Algebra	4		Ex 9.5 Investigation			
17	Generate terms of a sequence using the position-to-term rule	Algebra	5	A23a	Ex 9.6 Q4			
18	Use linear expressions to describe the n th term of simple sequences	Algebra	5	A11c	Ex 9.6 Q6			

Unit 10 – Transformations

	Objective	Strand	Step	MW	Key Question			
1	Identify congruent shapes	Geometry and Measure	3	G31	Ex 10.1 Q3			

2	Use the language of enlargement	Geometry and Measure	4	G28	Ex 10.1 Q6			
3	Enlarge shapes using given scale factors	Geometry and Measure	5	G28	Ex 10.1 Q7			
4	Work out the scale factor given the object and its image	Geometry and Measure	5	G28	Ex 10.1 Q8			
5	Recognise line and rotational symmetry in 2D shapes	Geometry and Measure	3	G3, G7	Ex 10.2 Q4			
6	Identify the symmetries of 2D shapes	Geometry and Measure	4	G3	Ex 10.2 Q5			
7	Identify reflection symmetry in 3D shapes	Geometry and Measure	5	G3	Ex 10.2 Q6			
8	Recognise and carry out reflections in a mirror line	Geometry and Measure	5	G4a, G4b	Ex 10.3 Q3			
9	Reflect a shape on a coordinate grid	Geometry and Measure	5	48	Ex 10.3 Q4			
10	Describe a reflection on a coordinate grid	Geometry and Measure	6	48	Ex 10.3 Q7			
11	Describe and carry out rotations on a coordinate grid	Geometry and Measure	6	49	Ex 10.4 Q4			
12	Translate 2D shapes	Geometry and Measure	5	50	Ex 10.5 Q2			
13	Transform 2D shapes by combinations of rotations, reflections and translations	Geometry and Measure	6	48, 49, 50	Ex 10.5 Q6			