

Year 8 Pi 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 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 – Number Properties and Calculations




	Objective	Strand	Step	MW	Key Question			
1	Add and subtract large numbers	N	4	N3 N13	Ex 1.1 Q5			
2	Multiply large numbers	N	3	N28a	Ex 1.2 Q7			
3	Use brackets	N	4	N20	Ex 1.2 Q3			
4	Add and subtract with negative numbers	N	3	N19a	Ex 1.3 Q5			
5	Multiply and divide negative numbers	N	4	N19b	Ex 1.3 Q11			
6	Work with ratios	R	4	R5a	Ex 1.4 Q5			
7	Find equivalent ratios	R	4	R5a	Ex 1.5 Q4			
8	Solve simple word problems involving ratios	R	5	R5b	Ex 1.5 Q6			
9	Understand the relationship between ratio and proportion	R	5		Ex 1.5 Q14			
10	Use proportion to solve simple problems	R	5	R8	Ex 1.5 Q13			

Unit 2 – Shapes & measures in 3D




	Objective	Strand	Step	MW	Key Question			
1	Recognise and name 3D solids	G&M	3	G12a	Ex 2.1 Q2			
2	Count faces, edges and vertices	G&M	4	G12a	Ex 2.1 Investigation			
3	Deduce properties of 3D solids from 2D representations	G&M	5	G12a	Ex 2.1 Q7			
4	Identify nets of 3D solids including cubes and cuboids	G&M	3	G12c	Ex 2.2 Q5			
5	Draw nets of 3D solids using a ruler and protractor	G&M	4	G12c	Ex 2.2 Q7,10			
6	Calculate the surface area of cubes and cuboids	G&M	4	G21b	Ex 2.3 Q6			
7	Find the volume of a cube and cuboid by counting cubes	G&M	4	G21a	Ex 2.4 Q4			
8	Know the formula for calculating the	G&M	5	G21a	Ex 2.4 Q8			

	volume of a cube or cuboid							
9	Solve problems involving units of length, area and capacity	G&M	4	N7a	Ex 2.5 Q4			
10	Convert between cm ³ and litres	G&M	4	R2 N7a	Ex 2.5 Q8			




Unit 3 – Statistics

	Objective	Strand	Step	MW	Key Question			
1	Design a data collection sheet	S	4	S3	Ex 3.1 Q7			
2	Group data into equal class intervals	S	5	S4	Ex 3.1 Q8			
3	Interpret complex bar charts	S	5	S2a	Ex 3.2 Q5,6			
4	Draw bar charts for more than one set of data	S	4	S2b	Ex 3.3 Q5			
5	Interpret pie charts	S	4	S9	Ex 3.4 Q5,6			

Unit 4 – Expressions & Equations




	Objective	Strand	Step	MW	Key Question			
1	Simplifying expressions by collecting like terms	A	4	A7	Ex 4.1 Q7&8			
2	Find outputs and inputs of function machines	A	4	N26	Ex 4.2 Q6			
3	Construct functions	A	4		Ex 4.2 Q11			
4	Solve simple equations and check the solution is correct	A	5	A12	Ex 4.3 Q6&7			
5	Understand the difference between an expression and an equation, and identify the unknown in an equation	A	4	A2	Ex 4.3 Q4			
6	Use brackets with numbers and letters	A	4	A8	Ex 4.4 Q5&9			

Unit 5 – Decimal calculations




	Objective	Strand	Step	MW	Key Question			
1	Add and subtract decimals numbers	N	4	N13b	Ex 5.1 Q3&5			
2	Multiply decimals	N	5	N15b	Ex 5.2 Q7&9			
3	Round decimals	N	5	N27b	Ex 5.3 Q1&4			

4	Order decimals	N	5	N2b	Ex 5.3 Q10			
5	Solve problems involving decimals	N	5		Ex 5.4 Q4			




Unit 6 - Angles

	Objective	Strand	Step	MW	Key Question			
1	Use a protractor to measure and draw obtuse and reflex angles	G&M	3	G10	Ex 6.1 Q1,4,5,7			
2	Estimate the size of reflex angles	G&M	4	G10	Ex 6.1 Q6			
3	Use vertically opposite angles	G&M	4	G18	Ex 6.2 Q3&4			
4	Work out the size of unknown angles in a triangle	G&M	4	G17	Ex 6.3 Q4			
5	Accurately draw triangles using a ruler and protractor	G&M	5		Ex 6.4 Q4			
6	Accurately draw a net if a 3D shape	G&M	5		Ex 6.5 Q4			
7	Investigate the sides of a right-angled triangle	G&M	5	G30	Ex 6.6 Q7			




Unit 7 - Number properties

	Objective	Strand	Step	MW	Key Question			
1	Calculate squares and square roots, mentally and using a calculator	N	4		Ex 7.1 Q2,5,9,10			
2	Calculate cubes and cube roots, mentally and using a calculator	N	5		Ex 7.1 Q15,19,20,21			
3	Do calculations involving brackets and square numbers	N	5	N20	Ex 7.2 Q3,4,7			
4	Use the brackets keys on a calculator	N	5	N44	Ex 7.2 Investigation			
5	Use index notation	N	4		Ex 7.2 Q5&10			
6	Find the factors of any whole number	N	4	N10	Ex 7.3 Q2			
7	Use the lowest common multiple (LCM) and highest common factor (HCF) to solve problems	N	4	N31b	Ex 7.3 Q10&13			
8	Write the prime factor decomposition of a number	N	4	N30b	Ex 7.4 Q8			




Unit 8 – Sequences

	Objective	Strand	Step	MW	Key Question			
1	Recognise, describe and continue number sequences	A	3	A11a	Ex 8.1 Q1			
2	Find and use pattern and term-to-term rules	A	3		Ex 8.1 Q2&5			
3	Use the term-to-term rule to work out terms in a sequence	A	3		Ex 8.2 Q3			
4	Recognise an arithmetic sequence	A	4		Ex 8.2 Q6			
5	Describe sequences arising in real life	A	5		Ex 8.2 Q8			
6	Describe and continue special sequences	A	4		Ex 8.3 Q5			
7	Recognise a geometric sequence	A	5		Ex 8.3 Q8			
8	Generate terms of a sequence using the position-to-term rule	A	5	A11b	Ex 8.4 Q8			
9	Find the nth term of a simple sequence	A	5	A11c	Ex 8.5 Q3,4,5			

Unit 9 – Fractions & Percentages

	Objective	Strand	Step	MW	Key Question			
1	Compare fractions	R	3	N34	Ex 9.1 Q1			
2	Simplify fractions	R	3	N23c	Ex 9.1 Q3			
3	Identify equivalent fractions	R	3	N23b	Ex 9.1 Q12			
4	Calculate with fractions mentally	R	5		Ex 9.2 Q1&2			
5	Calculate fractions of quantities	R	5	N33	Ex 9.2 Q3&7			
6	Multiply a fraction by a whole number	R	5	N37a	Ex 9.2 Q13,14			
7	Add and subtract fractions	R	5	N36	Ex 9.3 Q4,5,8,9			
8	Write a number as a fraction of another number	R	4	R3	Ex 9.4 Q4-9			
9	Change between fractions and percentages	R	4	N32	Ex 9.4 Q2,11			
10	Calculate percentages	R	3	N24b	Ex 9.5 Q3,14,15			
11	Compare proportions using percentages	R	5	N39	Ex 9.6 Q9			
12	Write one number as a percentage of another number	R	4		Ex 9.6 Q5-8			

Unit 10 - Probability

	Objective	Strand	Step	MW	Key Question			
1	Use the language of probability	P	3	P1	Ex 10.1 Q2			
2	Use a probability scale with words	P	4	P1	Ex 10.1 Q4			
3	Understand that probabilities can be written as fractions, decimals and percentages	P	4		Ex 10.1 Q7			
4	Find all the possible outcomes of an event	P	4	P2	Ex 10.2 Q5			
5	Use equally likely outcomes to calculate probabilities	P	4	P2	Ex 10.2 Q8&9			
6	Use probability notation	P	4		Ex 10.3 Q3			
7	Calculate the probability of an event not happening	P	5	P3	Ex 10.3 Q6&7			
8	Find all the possible outcomes of two simple events	P	5	P4	Ex 10.3 Q11			
9	Use data from an experiment to estimate probabilities	P	5	P7	Ex 10.4 Q3&4			
10	Collect data from an experiment, and make calculations based on results	P	5	P7	Ex 10.4 9or10			
11	Compare and interpret probabilities	P	5		Ex 10.5 Q4			