



WAGIN DISTRICT HIGH SCHOOL SEMESTER 1 OUTLINE

Year 9/10 Mathematics 2018

COURSE OUTLINE

Students will start first semester by revising the order of operations and extend this to explore the index laws. They will then look at units of measure, calculating area and volume of a range of shapes and investigating time scales. To finish off first term, students will consider rates and ratios, and problems involving direct proportion.

In Term 2 students will move on to algebra, applying their understanding of the index laws to variables, and developing their ability to manipulate algebraic expressions. To finish off the semester, students will turn their attention to statistics by exploring the collection, handling and analysis of data sets.

COURSE OUTCOMES

The following concepts from the Australian Curriculum will be addressed:

Number and Algebra

Real numbers

- Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)
- Apply index laws to numerical expressions with integer indices (ACMNA209)
- Express numbers in scientific notation (ACMNA210)

Patterns and algebra

- Extend and apply the index laws to variables, using positive integer indices and the zero index (ACMNA212)
- Apply the distributive law to the expansion of algebraic expressions, including binomials, and collect like terms where appropriate (ACMNA213)

Measurement and Geometry

Using units of measurement

- Calculate the areas of composite shapes (ACMMG216)
- Calculate the surface area and volume of cylinders and solve related problems (ACMMG217)
- Solve problems involving the surface area and volume of right prisms (ACMMG218)
- Investigate very small and very large time scales and intervals (ACMMG219)

Statistics and Probability

Chance

- Investigate reports of surveys in digital media and elsewhere for information on how data were obtained to estimate population means and medians (ACMSP227)

Data representation and interpretation

- Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly and from secondary sources (ACMSP228)
- Construct back-to-back stem-and-leaf plots and histograms and describe data, using terms including 'skewed', 'symmetric' and 'bi modal' (ACMSP282)
- Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)

TASKS & ASSESSMENT

Students will generally undertake work in blocks of 3 to 4 weeks. During this time they will be expected to complete a number of short quizzes, and an end of unit test. Students may also be required to complete assignments and/or investigations to help develop their understanding of the concepts covered. *While the key content will be taught at school, it is essential that students complete homework on a regular basis to help practice new skills and solidify their understanding.*

All work samples, both formal and informal, will then be used to determine the ability and grade of each student.

TIME LINE

	WEEK	KEY CONCEPTS	ASSESSMENTS
Term 1	1 – 4	<p style="text-align: center;"><i>Number & Algebra</i></p> <ul style="list-style-type: none"> • Order of operations • Manipulation of positive and negative integers • Index Laws • Applications of the Index Laws • Roots and surds • Scientific notation • Significant figures 	<p style="text-align: center;">Homework Quizzes</p> <p style="text-align: center;">TEST</p>
	5 – 8	<p style="text-align: center;"><i>Measurement & Geometry</i></p> <ul style="list-style-type: none"> • Units of area • Unit conversions for area • Formulas for area • Surface area • Volume and capacity • Volume formulas • Units of time • 24 hour time • Time zones 	<p style="text-align: center;">Homework Quizzes Assignment</p> <p style="text-align: center;">TEST</p>
	9 – 11	<p style="text-align: center;"><i>Number & Algebra</i></p> <ul style="list-style-type: none"> • Rates • Ratios • Direct proportion 	<p style="text-align: center;">Homework Quizzes</p> <p style="text-align: center;">TEST</p>
Term 2	1 – 3	<p style="text-align: center;"><i>NAPLAN</i></p> <p style="text-align: center;">Preparation and implementation of NAPLAN 2018</p>	
	4 – 6	<p style="text-align: center;"><i>Number & Algebra</i></p> <ul style="list-style-type: none"> • Language of algebra • Like terms • Simplification of expressions • Expansion of brackets • Factorisation 	<p style="text-align: center;">Homework Quizzes Investigation</p> <p style="text-align: center;">TEST</p>
	7 – 9	<p style="text-align: center;"><i>Statistics & Probability</i></p> <ul style="list-style-type: none"> • Data collection and sampling methods • Types of data • Two-way tables • Data measures – mean, median, mode and range • Data displays – stem-and-leaf and histograms • Describing data 	<p style="text-align: center;">Homework Quizzes</p> <p style="text-align: center;">TEST</p>

Timeline and assessment items may be subject to change.