Port Moresby International School

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Unit & Assessment Semester Outline for Students & Parents Grades 11 – 12.

Year	2026	Semester	2	Grade	11	Unit Value	1
Curriculum		ACT//PNG					
Subject Title/s		Mathematics					
Course Name		Further Mathematics					
Unit Name		Unit 2: Mathematical Applications					
Course Code		1414		Unit Code		14720	

Assessment Tasks

Week Due	Topic(s)	Type of Task	Weighting
6	Univariate Data Analysis	Project	30%
10	Linear Equations and Graphs	Test # 1	35%
14	Applications of Trigonometry	Test # 2	35%

Learning outcomes against which the students will be reported

1. Understand the concepts and techniques, apply reasoning skills and solve practical problems in univariate data analysis and the statistical investigation process, linear equations and their graphs and applications of trigonometry.
2. Implement the statistical investigation process in contexts requiring the analysis of univariate data.
3. Communicate their arguments and strategies, when solving mathematical and statistical problems, using appropriate mathematical and statistical language.(4) Interpret mathematical and statistical information, ascertain the reasonableness of their solutions to problems and their answers to statistical questions.
4. Choose and use technology appropriately and efficiently.

Assessment Criteria

Students will be assessed on the degree to which they demonstrate:

- Knowledge - knowledge of mathematical facts, techniques and formulae presented in the unit
- Application - Appropriate selection and application of mathematical skills in mathematical modelling and problem solving
- Reasoning - ability to use reasoning to support solutions and conclusions
- Communication - interpretation and communication of mathematical ideas in a from appropriate for a given use or audience.

Regulations governing ACT Late Submission of Work, Non-Submission of Work, Attendance, Cheating/Plagiarism, Grade Descriptors, Moderation Procedures, Method of unit score calculation, meshing procedures, Course information - are available from the BSSS website;

www.bsss.act.edu.au/home

Summary of Content

Weeks	Content Outline	Curriculum Links
1-2	**Review the statistical investigation process** (identifying a problem & posing a statistical question, collecting, analysing, interpreting and communicating the results. Classify categorical variables as ordinal/nominal, numerical as discrete/continuous,	ACT Unit 2 Topic 1 p.25, PNG 11.3
3-4	Appropriate graphical display (dot & stem plot, bar chart, histogram), describe the distribution of a numerical dataset in terms of modality(uni/multimodal), shape (symmetric versus +/-skewed, location/spread/outliers.	ACT Unit 2 Topic 1 p.25, PNG 11.3
5-6	Mean & Standard dev. Median and spread (IQR/Range/Q1/Q3) on a box plot, Report findings. Implement statistical investigation process. (Project Week 6)	ACT Unit 2 Topic 1 & 3 p.25-26, PNG 11.2
7-8	**Linear Equations and their graphs**: Linear Equations, Straight line graphs and their application	ACT Unit 2 Topic 3 p26, PNG 11.2 & 12.1
9-10	Simultaneous linear equations and their applications, Sketching and interpreting Piecewise linear graphs & step graphs, Interpret to model practical situations. (Test 1 Week 10)	ACT Unit 2 Topic 3 p26, PNG 11.2
11-12	**Applications of Trigonometry**: trigonometric ratios, solving right triangles, angles of elevation and depression	ACT Unit 2 Topic 2 p25, PNG 11.4 & 12.2
13-14	Non-right triangles: sine rule, cosine rule, area of triangle given two sides and an included angle/given 3 sides by using Heron's rule; solve problems involving non-right-angled triangle. (Test 2 Week 14)	ACT Unit 2 Topic 2 p25 PNG 11.4 & 12.2
15-16	Solve practical problems involving the trigonometry of right-angled and non-right-angled triangles, including problems involving angles of elevation and depression and the use of bearings in navigation.	PNG 12.2
17-18	Further applications of trigonometry: bearings, real-world problem solving, extended practice	PNG 12.2
19-20	**Vectors:** Scalar/Vector, Equal/Opposite/Multiple Vectors on diagram, Unit & Position Vectors, +-vectors, multiply a vector by a scalar, angle between two vectors, scalar product	PNG 12.2